THE JOURNAL
of the Michigan State Medical Society

VOLUME 50 MARCH, 1951 NUMBER 3

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THE COVER

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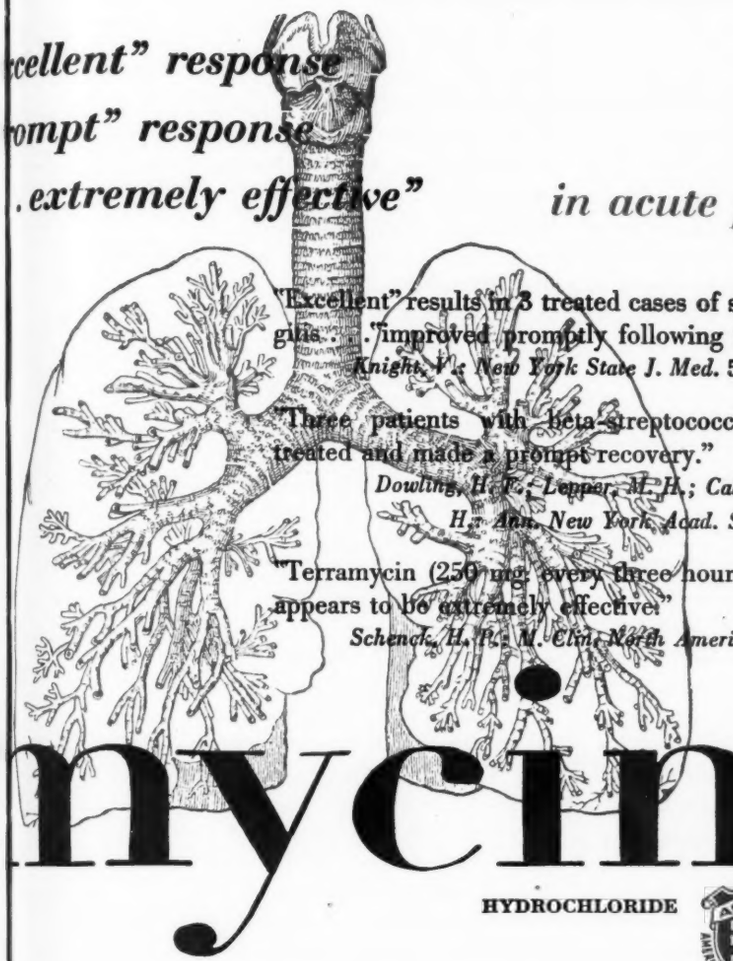

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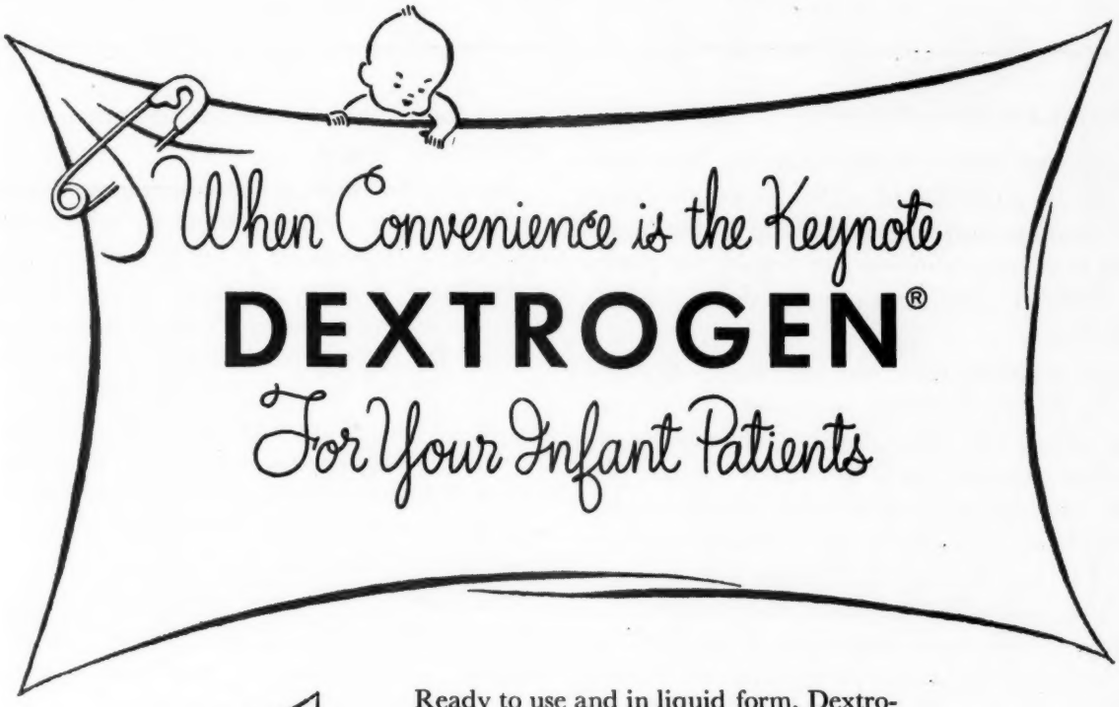

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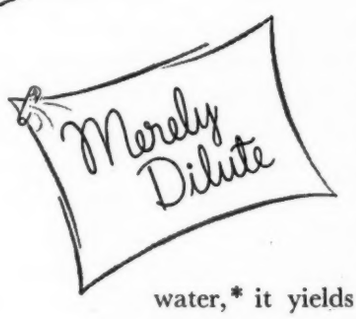

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Cancer Comment

TUMOR CHEMOTHERAPY

For almost half a century scientists have been studying the possibility of curing cancer by exposing the malignant growth in the body of the cancer patient to chemicals in order to destroy the cancer tissue without also damaging or destroying the normal tissue.

In the beginning there was (and still is to a certain extent) an empirical selection of chemical agents chosen for these studies. There were no acceptable scientific facts on which to base the studies, and they were undertaken largely on hypotheses based on experiments in related scientific fields. In fact, the use of chemical agents as arsenic, zinc and other metals in the treatment of cancer goes back to the beginnings of medical history where their use was reported in India, Egypt, and Persia. Today, these same chemicals form the chief ingredients of the widely advertised "cancer cures" of the quack and charlatan.

Many of the early studies employed caustic chemicals known to be destructive to protoplasm. Bacterial filtrates, of which Coley's toxin is perhaps best known, have also been tested in large numbers. Analgesics, as cobra venom and opium, have been tested for their cancer-destroying power as well as their ability to relieve pain.

Both organic and inorganic chemical agents have been exhaustively studied. The emphasis today seems to veer toward organic agents because it is increasingly realized that the cancer cell has the same progenitor as all other cells in the same body and that biochemical forces caused the changes in the cell that made it cancerous. If this is so, the cure of cancer may lie in the discovery and use of those same biochemical forces or their antagonists within the body. It seems most unlikely that an inorganic chemical, regardless of how destructive it may be to cancer tissue *in vitro,* will be able to exercise the same destructive selective action on cancer *in vivo* without also destroying all normal tissue with which it comes in contact. When it is recognized that each of the many forms of cancer is surrounded with different environmental conditions, the search for one destructive chemical universally applicable to all forms of cancer seems almost hopeless, especially when a chemical selectively destructive to even one form of cancer has not yet been found.

Among the lines of chemotherapeutic research being currently followed might be mentioned the isolation from protozoa of substances that damage tumor tissue. Dietary studies by means of alkaline diets are also under way. Foods containing added glucose and other carbohydrates are being tested for their effect on cancer tissue. Heptaldehydes, having a known inhibiting effect on tumor growth, are being studied. Amino acids are tumor inhibitors. Colchicine is known to inhibit mitosis. These, and many other organic chemicals are under investigation as chemotherapeutic agents.

The role of hormones, both natural and synthetic, in the treatment of cancer has long been studied. The carcinogenic properties of many of these biologic products is well known, as well as their inhibiting action on tumor growth when employed in the opposite sex. The action of stilbestrol on prostatic cancer and testosterone on breast cancer are well known examples. However, their action at this time is palliative and not curative.

In spite of the vast amount of research that has been and is being carried on, no agent has been found specifically destructive to tumor tissue.

Out of the many research studies on growth now being conducted under supervision of the National Research Council (see Jrn. MSMS, June, 1950, p. 636) there is hope that leads will develop indicating which side of the cancer cell is the most vulnerable to attack. Until this Achilles' heel is found, reliance must be placed on surgery and radiation with x-rays and radium for the treatment and destruction of cancerous growths.

A recent publication, "An Index of Tumor Chemotherapy," by Helen M. Dyer, Biochemist, National Cancer Institute, Bethesda 14, Maryland, presents an exhaustive report on the whole tumor chemotherapy problem. Dr. Dyer has collected comparable data on 5,031 different chemicals and their compounds reported in scientific literature to which she and associates had access. A bibliography of 2,213 references is appended which refers to the subject matter discussed. This huge bibliography gives some indication of the amount of

(Continued on Page 240)

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Editorial Comment

THE TIME IS NOW

Prepayment of costs of medical and hospital care, on a voluntary basis, has worked out very successfully, in the United States, as demonstrated by the millions of Americans who are budgeting for both routine and emergency care through the medium of insurance.

Blue Shield and Blue Cross have played a particularly effective part in the continuing evolution and improvement of voluntary prepayment plans and have demonstrated that such plans can function successfully and economically.

There is danger, however, that premium costs can rise to such heights that the average American family will be unable to afford voluntary insurance. Obvious factors, directly raising costs to the policyholder, are the present trends toward inflation, and the oncoming higher taxation which will leave less actual dollars for the buying of prepaid insurance.

Less obvious, but just as dangerous circumstances, that affect premium costs are what we, as physicians, do to our own Blue plans. Premium costs rise with increased utilization. Therefore, each unnecessary laboratory procedure ordered or indulging the patient with even one extra unnecessary day's stay in the hospital or hospitalizing the case that needs custodial care or hospitalizing a patient for a rest or because it's a vacation time or hospitalizing a patient for laboratory studies that could and should be done in private laboratories, results in increasing costs to the subscriber.

When WE misuse the Blue Plan, we commit an impractice. In addition, we are doing a disfavor to both the patient and ourselves. THE TIME IS NOW to realize that Blue Cross is NOT ONLY the "hospital's" plan. IT IS OURS, AS WELL.

We must realize that the prepayment plan is our answer to socialized medicine and that it has been, to date, the most practical obstruction to the realization of the socialist dreamer's schemes—far more effective than movies, pamphlets, writing to congressmen, speech making, button-holing patients to join our crusade, and the bombarding of physicians with propaganda material, most of which is tossed into the waste basket unread.

Unless each one of us individually guards against abuses leading to over-utilization of the Blue plans, we may well back ourselves into socialized medicine.—FRANK A. WEISER, *Detroit Medical News,* December 25, 1950.

OSCAR NEEDS TO BE TOLD

Someone should take Oscar Ewing into the study and tell him the facts of political life.

Someone needs to tell the federal security administrator that across the country last November 7, Ewingism—the steady extension of the handout state, of which Oscar is the prime herald—was repudiated. Doesn't Ewing even know that even some Democratic candidates for congressional office disavowed socialized medicine and further federal intrusion into education, of which Ewing is the principal apostle?

Someone needs to tell Oscar Ewing that we are in imperative need of devoting our human and material resources to strengthening our defenses—not to paying for Ewing's cockeyed schemes of socialization.

Even after President Truman had informed members of Congress that 18 billion dollars more than is already pledged to that purpose, would be needed for defense, Ewing made a speech in which he again advocated the passage of bills to set up a national health insurance system and federally to subsidize medical education.

For Ewing to use the present crisis in international affairs as a pretext for pushing forward his schemes to socialize American medicine to a high degree is inexcusable.

Ewing's latest utterances do minus nothing to fulfill what Mark Sullivan, the political historian, said in a recent *New York Herald Tribune* column was a great need by the American people—the need of confidence, a feeling "of assurance on the part of the people that things will be done well" in this critical period.

"What is needed is to make the people feel that the president has waived some of his own prerogatives of judgment, that he follows on a broad scale a practice of deferring to others—including especially ones whom in the past he has opposed and ones who hold principles and

(Continued on Page 240)

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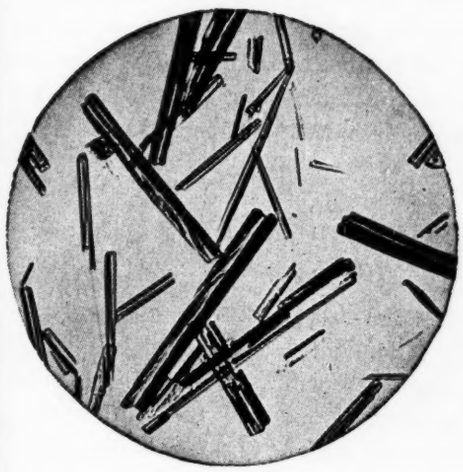

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OSCAR NEEDS TO BE TOLD

(Continued from Page 238)

have an outlook contrary to what has been his," Sullivan wrote.

For Ewing, at this time, to keep on advocating the handout state on a bigger and broader scale does not inspire public confidence in the federal administration, in its ability to put first things first, in its willingness to forego expenditures—as usual for domestic functions that can be trimmed or eliminated in this hour of need to strengthen the nation against Russian imperialism.—Editorial, *Cleveland Plain Dealer,* December 5, 1950.

TUMOR CHEMOTHERAPY

(Continued from Page 234)

research already expended on this problem. References to chemicals exploited by quacks and charlatans for purely commercial purposes have been omitted. Copies of this Index of Tumor Chemotherapy may be obtained without cost from the National Cancer Institute, Bethesda 14, Maryland.

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Development, Use and Effects of Atomic Energy

By Macon Miller, M.S.

Detroit, Michigan

THE PHENOMENA of radioactivity were discovered in 1896 by Becquerel. They form the basis for the investigations of atomic energy which have led to the development of the atomic bomb and substantiation of Einstein's theory of the equivalence of mass and energy.

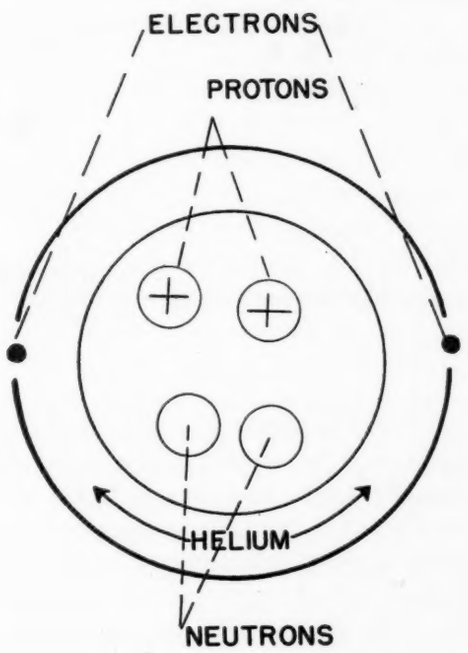
As we know, each atom contains a nucleus and its attendant electrons (Fig. 1).

Radioactivity is a phenomenon of the nucleus of the atom, and consequently lies in the field of nuclear physics. Certain definitions and elementary theories must be understood if we are to find out how atomic energy "works."

Each nucleus is characterized and identified by two numbers: its atomic number, Z, and its mass number, A.

$$_{Z}He^{A} \cdot {}_{2}He^{4}$$

Z represents the charge on the nucleus, expressed as an integral number of positive electronic charges; it thus specifies the chemical element to which the nucleus belongs. The mass number, A, specifies the number of elementary or primary particles forming the nucleus. The primary particles in the nucleus are *neutrons,* which are uncharged, and *protons,* which carry a positive charge and hence are responsible for the atomic number. Thus the number of neutrons (N) in the nucleus is A-Z. For example, in uranium 235 (element 92), $A = 235$ and $Z = 92$. Therefore N is 235 — 92, or 143.



THE ATOM

Fig. 1

$$\text{URANIUM } {}^{235}_{92}U^{235\,(R)}_{(Z)}$$

R-Z = 143 NEUTRONS IN THE URANIUM NUCLEUS

Atoms with the same Z number but different A numbers are called *isotopes.* The isotopes of uranium 235 and 238 are well-known examples.

$$_{92}U^{235} \xleftrightarrow{\text{ISOTOPES}} {}_{92}U^{238}$$

Presented before the staff of Wayne County General Hospital and Infirmary, Eloise, Michigan, July 21, 1950.

From the Department of Physics, Wayne University.

Uranium, the element in which radioactivity was first observed, was soon found to emit three different types of particles: *alpha, beta* and *gamma* "rays." Briefly, the alpha particle is the nucleus of a helium atom (a particle composed of two neutrons and two protons), the beta particle is an ordinary electron, and the gamma ray is similar to x-ray and has the same properties as x-rays of equivalent energy. The alpha and beta rays are material particles and have relatively low penetrating ability. The gamma rays are electromagnetic in nature and are highly penetrating.

It should be remembered that the emission of these particles or rays is called *radioactive decay,* and that the rate at which it takes place is measured by the *half-life* of the radioactive element—that is, the time necessary for one-half the atoms in a given quantity of the substance to disintegrate and undergo these nuclear changes.

A most important property of radioactivity is that it is an exothermic reaction, that is, energy is released by the reaction. The source of this energy is explained by Einstein's formula relating mass and energy, $E = mc^2$, where c is the velocity of light, m is mass and E is the energy resulting when the mass is converted into energy. If we should weigh the nucleus and the emitted particles formed by a radioactive decay, we would find that their combined weight is less than the weight of the original nucleus. The difference in mass has been converted into energy. Since a little mass produces an enormous amount of energy (1 Gm. = 25,000,000 kilowatt hours), it would be desirable indeed to harness the process commercially by controlling the reaction rate of the process. However, radioactivity proceeds at a rate which cannot be influenced by any means now available to scientists.

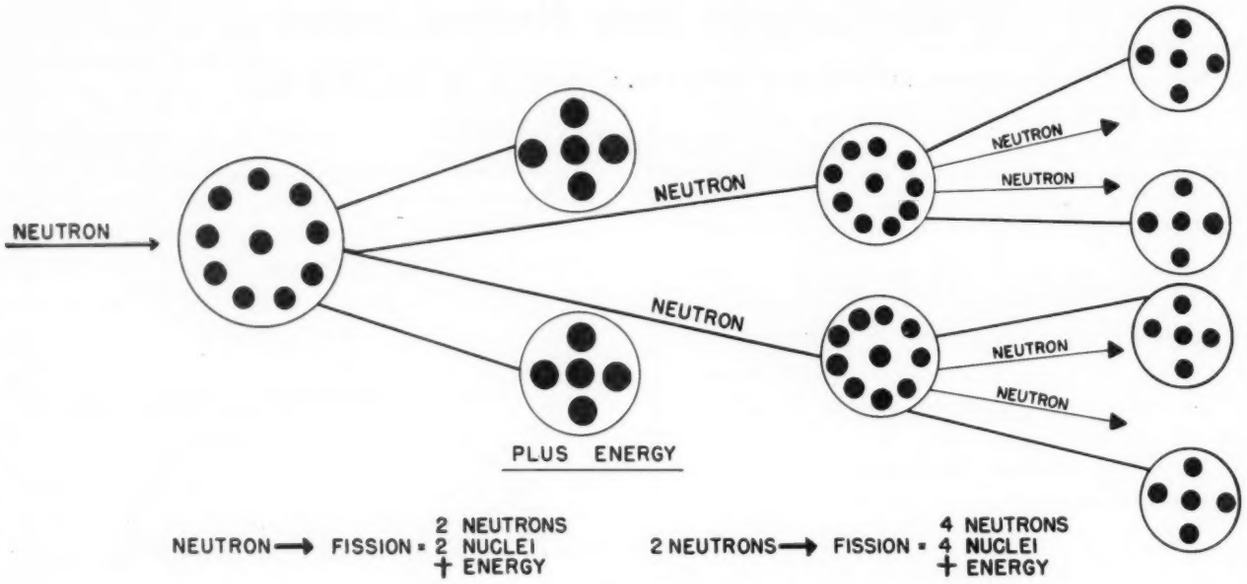


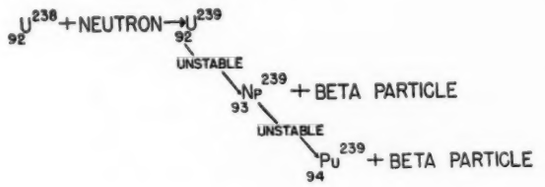
Fig. 2

The foundation for the development of the atomic bomb was the discovery, in 1932, of the neutron, the uncharged nuclear particle. This particle was identified by Chadwick, in England. The fact that it has no charge makes it very penetrating and is the source of its importance in nuclear change. Irene Curie and Frederick Joliot in 1933 found that radioactivity could be produced "artificially" in ordinarily stable elements. They observed that bombarding the lighter elements, such as aluminum, with neutrons induced emission of beta particles. For example, aluminum, element 13, is converted by neutron bombardment into silicon, element 14. The Italian physicist, Fermi, and his co-workers in 1934 experimented with the bombardment of uranium with slow neutrons (neutrons whose velocity had been reduced by passing them through certain light substances). They discovered four new beta ray activities. It was at first believed that these beta activities represented conversion of element 92 into a transuranium element, number 93. But in 1939 Hahn and his associates in Berlin discovered that bombardment of uranium produced isotopes of barium, cerium and lanthanum by chemical separation. From this work came the hypothesis that

instead of simply undergoing the expected radioactive decay, some of the uranium nuclei had split into two approximately equal halves, with an accompanying release of energy. Finally, in 1940, American workers demonstrated that it was the nucleus of uranium 235, rather than uranium 238, that underwent this splitting, or *fission,* when bombarded by slow neutrons.

The possibility of atomic energy and explosive weapons inherent in the fission process was quickly recognized by nuclear scientists. The reasons are: (1) a large amount of energy, much greater than that of normal radioactivity, is released in the fission process; (2) fission can be initiated by slow (*i.e.,* low energy) neutrons; (3) the process is essentially instantaneous; and (4) one to three neutrons are released in each fission. These fission neutrons can be used to produce fission in still other U^{235} nuclei, thus making possible a chain reaction in sufficiently pure U^{235} (Fig. 2).

When the U^{238} nucleus captures a neutron, it undergoes two successive beta-ray emissions, to form plutonium, element 94, which is also fissionable by slow neutrons.



A fast chain reaction (explosion) will occur spontaneously when sufficient U^{235} or Pu^{239} is brought together. This "sufficient" quantity is termed the *critical mass.* If the mass is subcritical, any neutrons produced by fission tend to escape through the surface of the material instead of producing fission of other atoms and so sustaining the reaction. In order to construct a successful atomic bomb, it was necessary to devise a method for bringing together very rapidly at exactly the desired time a critical amount of U^{235} or Pu^{239}, initiating a chain reaction with the consequent liberation of tremendous energy—the atomic explosion, accompanied by the same blinding flash which lit the New Mexico desert in July, 1945, and followed by the same mushroom-shaped cloud which hung over the stricken cities of Nagasaki and Hiroshima when man first loosed this powerful weapon.

The energy released by an atomic bomb may be classed under three headings; (1) blast, (2) thermal energy and (3) radioactivity.

1. The blast energy (about 75 per cent of the total energy) produces a shock wave of high intensity and of long duration. The long duration of the shock wave is in marked contrast to that produced by a chemical explosive, and greatly increases its destructive power. The shock wave is "pushing," rather than just "slapping" an object in its path.

2. The extremely high temperature of the atomic fire ball produced by the explosion leads to the emission of thermal energy in the form of infra-red, visible and ultra-violet light. Depending on distance, objects may be ignited or charred and personnel may suffer burns of varying degree. However, the thermal energy has little penetrating ability and consequently produces a surface effect so that only exposed skin is seriously affected.

3. The radioactivity has three components in order of their increasing range: a shower of free neutrons, a burst of gamma rays, and continuing beta and gamma activity in the fission fragments themselves. The neutron shower is of relatively short range, and for an air burst at 2,000 feet, just barely reaches the ground. In an air burst, the fission fragments are carried upward with the rising cloud and heated air and are subsequently so widely scattered as to be of no danger. However, the initial burst of gamma rays is of sufficient intensity and penetrating ability to cause many cases of radiation sickness.

An underwater burst is unique in that the water absorbs most of the thermal energy and many of the gamma rays, and at the same time traps the highly radioactive fission fragments. Detonation near the surface of the ground (say 500 feet or less) produces a shallow radioactive crater, but reduces the over-all area of effectiveness. No information is available on sub-surface explosion. To achieve the maximum area of destruction, an air burst at an altitude of about 2,000 feet is indicated.

An atomic explosion over a large city produces large numbers of casualties in a very short time. The medical effects of the bomb may be roughly divided into three categories: (1) blast injury, (2) burn injury, and (3) radiation injury. The injuries from blast are mostly indirect, resulting from collapsing buildings, flying glass and other debris. Burns are from two sources: flash from the bomb itself and fires from objects ignited by the

explosion. As the effects of radiation are mostly delayed, radiation sickness does not become serious for a period varying from hours to weeks, depending on the amount of exposure. The exact number of casualties at Hiroshima and Nagasaki is unknown. It has been estimated that 70,000 to 80,000 died at Hiroshima and about 40,000 at Nagasaki. The number of non-fatal casualties doubtless exceeded the deaths. It should be noted that the shortage of medical personnel and supplies, and the long delay in the arrival of outside help were responsible for many deaths. The percentage of deaths due to radiation is estimated at 15 per cent. Adequate supplies of antibiotics and blood would doubtless have considerably reduced this percentage.

Material destruction by the atomic bomb is also of great importance. Medical facilities, fire-fighting equipment, communication and transportation systems, one and all are partially or wholly destroyed. Breaks in water mains reduce the water pressure, rendering the remaining fire-fighting equipment useless. Broken gas mains and short circuits start numerous fires. These, fanned by the wind caused by the rising cloud, immediately begin to devour the devastated area, including those victims who are trapped in the wreckage.

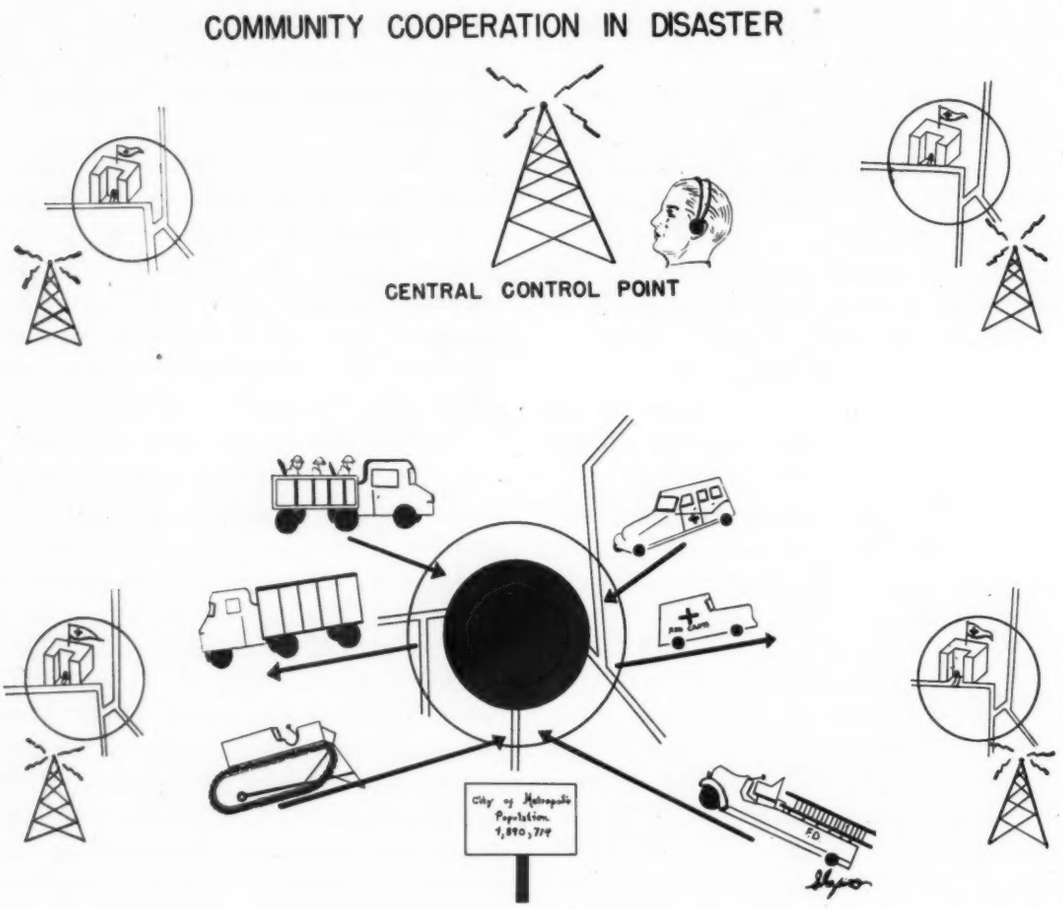


Fig. 3

The problem of reducing the material damage of an atomic explosion is very expensive, involving as it does decentralization of the target. On the other hand, a few minutes of warning could reduce the number of casualties to one-half or less. Since burn casualties alone need so much care, even a little protection would simplify this problem considerably.

The experience of Hiroshima and Nagasaki would seem to indicate that aid to the stricken area must come from neighboring communities (Fig. 3). The response of the general public in and near the target area would be of decisive importance. Emphasis should be laid upon training for action and

(Continued on Page 261)

Instrumentation

By K. E. Corrigan, Ph.D.

Detroit, Michigan

THE PROBLEM of instrumentation in preparation for atomic bomb disaster can be analyzed in terms of the types of radiation to be expected. This, in turn, is strictly a matter of (1) the nature of the bomb and (2) the conditions under which it can be used.

Since the air burst is the most destructive, it is the most probable and, if it occurs, will give rise to two radiation problems. The first of these is direct exposure of casualties to gamma radiation and neutrons. The second will be possible contamination with radioactive residues.

The source of the primary radiations will be the explosion cloud itself and the total duration in any significant intensity should not be over a period of more than one to three minutes. The intensity of the gamma radiation will fall off inversely as the square of the distance, and intensities that will cause serious physiological damage are actually not to be expected beyond the range of almost total blast and heat damage. Within a limited area around the epicenter of the bomb, the intensity may be very high and casualties having a combination of immediate injuries from blast and fire, coupled with latent injuries from radiation, are to be expected. There may be a few cases where persons caught in the area of intense destruction will not show immediate physical injuries and will later show serious radiation injuries, but this type of casualty will be the exception rather than the rule. This, of course, is due to the well-known phenomena of reflection and "skips" by shock waves in all disastrous explosions, coupled with the fact that very light structures, such as a wooden partition, may be adequate protection from the flash burns and will have only negligible effect on the penetrating radiations.

The radiation from the explosion itself will be entirely transitory, like the radiation from an x-ray tube which is turned on and off. The measurements of this radiation, therefore, are something that must be planned well in advance. These measurements will have a considerable value from a number of scientific and, possibly, military points of view but will be of relatively little interest to the physicians responsible for the care of casualties. In any case, due to the intensity, the unpredictability, the transitory nature and the relative minor significance that this radiation has as a casualty producer, the measurement of this radiation will have to be in the hands of authorities other than the medical groups whose primary interest is the care of casualties.

So far as our immediate interest in the primary radiation from the explosion is concerned, it will only be necessary to know how far a casualty was from the epicenter at the time of explosion to estimate the maximum dose that he may have received. If he has had any significant protection, such as a concrete wall between himself and the actual explosion, the dosage will always be less than the estimated exposure for the distance, and the actual exposure can be evaluated on the basis of the usual hematological and other physiological observations. This will probably be adequate and, in any case, unless the population can be supplied with personnel monitoring devices described below, will be the best compromise obtainable.

From the point of view of our committee, and considering that we live in Michigan, exposure due to residual radioactivity will be a much more critical problem, and it is with this form of radiation exposure that our instrumentation program must deal. In the case of an air burst of maximum efficiency, the residual contamination to be expected will be very low and may be negligible.

Heavy contamination could possibly occur in one of four ways:

1. A maximum efficiency air burst. This possibility would depend upon meteorological conditions and could only result from heavy precipitation of rain from the cloud itself. Such precipitation could occur at a considerable distance from the point of explosion and, while the dense contamination from this mechanism is not too likely to occur, it is a possibility that must not be overlooked.

2. A water burst, which is a good possibility at a harbor city or any great center of water transportation. This type of burst would result in the precipitation of a large quantity of contaminated water in the immediate surroundings and an area near the harbor might be very densely contaminated.

3. A ground burst or an air burst at less than the intended altitude.

4. The possibility of a partial failure of the bomb mechanism, resulting in partial fission with vaporization of the bomb fuel without production of intense heat which would normally carry the fission products and bomb residues upward into the stratosphere.

Fig. 1. Ionization chamber for monitoring purposes, "Cutie Pie." (Courtesy of Radioactive Products, Inc.)

In any one of these possibilities, two types of residual contamination will exist in addition to some primary exposure of the type already discussed. One of these would be a large quantity of the short-lived radioactive isotopes which result from fission and the other would be a residue of very long-lived alpha particle emitters. In the case of a relatively complete explosion, the short-lived products would be the major problem and, in the case of a relatively poor explosion, the long-lived residues would predominate.

From the foregoing considerations it will be seen that two general classes of instruments will be needed. These will be:

1. Detection instruments which operate rapidly. While giving only qualitative, or semi-quantitative measurements, they will serve to outline areas of contamination on the ground or building, and also serve to detect any significant contamination which may occur on the clothing or bodies of casualties as the result of radioactive water or dust. These must be portable and ready for use in the field.

2. Measuring instruments which give quantitative measurements of radioactivity and also evaluate the type of radioactive material detected. In general, these will be larger, heavier, power-operated instruments and will be located in control laboratories.

The short-lived isotopes which may give intense exposure for short periods of time in areas of heavy contamination are mainly gamma and beta emitters, while the long-lived isotopes are mainly alpha emitters. Since these radiations are not equally well detected by all instruments, an assortment of detection and measuring devices intended for different uses are necessary. For example, a rescue crew dispatched into an area which may be contaminated will be concerned primarily with gamma ray exposure. The possibility of the existence of alpha emitters in the same area should be recognized to the extent of providing protective clothing, footgear, gloves and masks. Since no protective clothing can possibly prevent the exposure to gamma rays, which are exactly like high voltage x-rays in nature, it will be necessary to provide the rescue crew with (1) an exposure meter of a type that can be used to measure their tolerance time in the general area, and (2) individual devices for measuring accumulated exposure.

A measuring device suitable for use by a rescue crew is illustrated in Figure 1. The device consists of a large-volume ionization chamber which is hooked to an electronic amplifying circuit and gives a direct reading of radiation intensity. It operates from self-contained batteries and is completely portable. There are many such devices but all of them have the same fundamental characteristics. In general, the instrument is semi-quantitative for gamma rays and, when used properly, is highly sensitive to beta particles. It gives an instantaneous reading of intensity and, therefore, can be used as a guide. A trained monitor, using this instrument, can limit the working time of a rescue crew in a general radiation field so that their own tolerance limit of exposure is not exceeded. Each individual on the team, however, should have a device to show his personal accumulated dose.

Figure 2 illustrates one type of personnel meter. This consists of a small ionization chamber similar to a fountain pen which can be worn in the pocket and will indicate the total amount of gamma radiation to which an individual has been exposed. There are also various forms of this instrument,

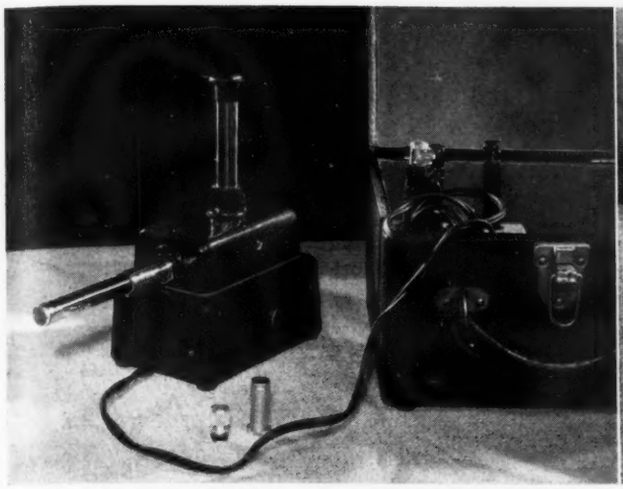


Fig. 2. Fountain pen ionization chamber for personnel protection, "Minometer." (Courtesy of The Victoreen Instrument Company)

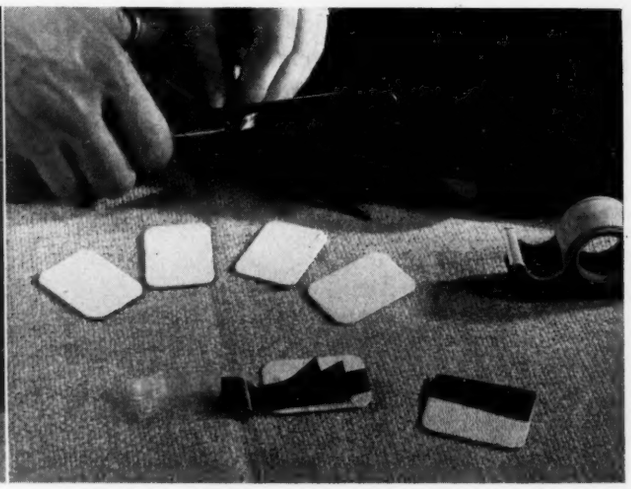


Fig. 3. Homemade film badges for personnel monitoring. Commercial 0.010-inch lead foil is approximately 0.25 mm. thick. Method of making and attaching step-wedge is shown.

some of which can be read directly. Others, like the one illustrated, must be returned to a central point where the charging and reading instrument is available.

Other types of equipment which can indicate total body exposure to gamma rays include film badges of various sorts, and numerous devices consisting of a small crystal which discolors under the influence of radiation, or tubes containing organic chemicals which are decomposed by radiation, again giving rise to a color change or an opacity. Fundamentally, these devices are as old as the science of radiology itself, color pastilles having been one of the first methods of measuring radiation dosage, and liquid chemicals, such as Eder's solution, having been very popular for high voltage radiation measurements twenty years ago. These ideas have been revived, and modern chemical and technological improvements have made many of them practical. In general, quantitative instruments of these types are not yet available in quantity but it is possible that they will be available in the near future.

The devices which depend on photographic effect for measuring total body exposure consist, at best, of badges which have been developed by the Atomic Energy Commission and which contain two films, one quite sensitive to radiation and the other quite insensitive with an overlap of sensitivity between the two. With these under proper conditions, very good evaluation of exposure to both gamma rays and neutrons may be obtained. It should never be forgotten that the simple arrangement of a dental x-ray film with a metallic marker or, if possible, a step-wedge of lead foil taped to its surface, is a highly satisfactory device for measuring total body exposure, and is very generally available (Fig. 3). All of the devices depending upon photographic or x-ray film have one limitation in that the films must be returned to a central point where they are developed and compared to standards in order to evaluate the dosage. The exposure and development of the standards themselves are a specialized technique.

At the present time efforts are being made to take advantage of two newer methods in commercial photography, (1) the direct reversal film which turns light instead of dark with exposure, and (2) the use of self-contained pods of developing and fixing solution. Film badges incorporating these improvements can be developed and read immediately in the field, or at any field hospital without returning to the central control point. This item, again, is not yet generally available but may be in the near future and will offer a distinct advantage for accurate personnel monitoring.

It might seem at first glance that the entire population, or a statistical sample of it, should be supplied with these monitoring devices. There would be a distinct advantage in that a reliable evaluation of the radiation exposure could be obtained and taken into consideration along with other medical factors in the care of a living casualty. Also, a relatively accurate evaluation of the primary radiation exposure from the bomb itself could be obtained from these devices recovered

from casualties, both living and dead. At the present time this is not practical, since all of the immediately available monitoring instruments have a limited useful life under ordinary conditions.

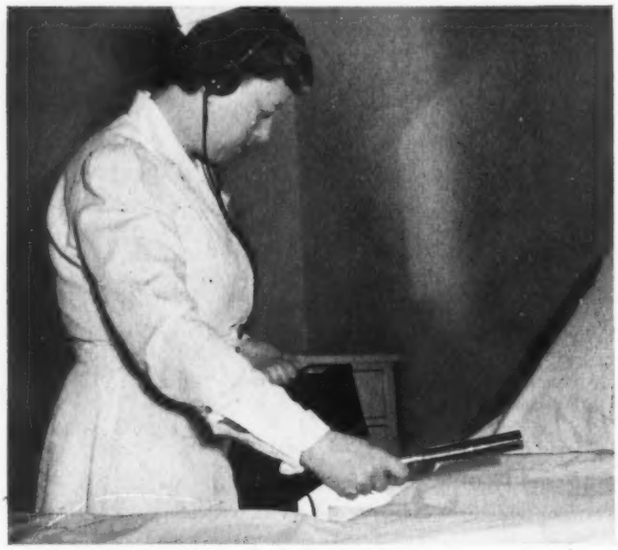


Fig. 4. Portable battery-operated counter in use for monitoring a surface.

Every possible effort should be made, however, to insure that all members of rescue teams, ambulance crews and field hospital groups will be supplied with personnel monitoring equipment of one or more of the types described, at the time it is needed.

Instrumentation for sorting casualties and checking contamination of clothing and skin will also be essential. Of the instruments available at this time the most useful for this purpose will be the portable battery-operated Geiger-Mueller counter. The fission products with which casualties are most likely to be contaminated will contain high percentages of energetic beta and gamma emitters of relatively short-life and these are best detected by the type of instrumnt shown in Figure 4. This instrument is provided with a thin-walled counter tube which will detect beta particles, and a brass filter which can be slipped on or off of the sensitive area of the tube to check gamma emitters. In this way, strong surface contaminations can be detected quickly and the efficacy of decontamination methods for personnel can be evaluated. The instrument is of some use in area monitoring of the type described for the first ionization instrument. Like all Geiger-Mueller counters, this instrument is very much more sensitive than the ionization chamber but its sensitivity to gamma rays depends too seriously on the energy of the radiation being measured. Consequently it makes an excellent instrument for detection and evaluation of surface contamination but not for

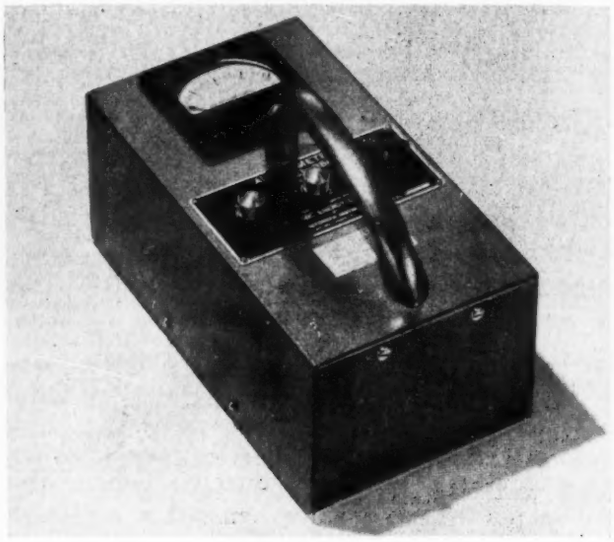


Fig. 5. Alpha particle survey meter. (Courtesy of The Victoreen Instrument Company.)

quantitative evaluation of total body exposure.

Instruments of this type will be needed primarily in receiving stations and field hospitals. In addition to the counters another type of ionization instrument suitable for detection of alpha emitters on the skin and other surfaces will be needed in such installations for the protection of personnel. Portable alpha particle detectors are limited by the fact that the very energetic alpha particles, due to their great mass (4 atomic mass units, or 7440 times the mass of the beta particle) have an extremely short range in air and are absorbed by very thin membranes. Practically all of them, for example, are absorbed by the outermost layer of the epidermis. Portable alpha particle detectors differ from the instruments already described in that they must employ either an open ionization chamber or one closed with an extremely fragile membrane. They are, therefore, more delicate and more difficult to handle (Fig. 5).

The instruments described so far will, in general, cover the immediate problems arising from an explosion of any of the ordinary types. Until it can be proven otherwise, we must also assume and prepare for the eventuality of heavy contamination with radioactive materials which are primarily alpha emitters. These will not cause the immediate and spectacular casualties that dense

contamination with the gamma and beta emitters will produce, but the production of bone malignancy by ingested isotopes of the radium family, the production of malignant change in the liver by the

Fig. 6. Geiger counter equipment for precision measurements (Harper Hospital).

radioactivity from thorium and the production of lung carcinoma by radon are too well known to the medical profession to need detailed discussion.

Heavy contamination with these isotopes could arise in two ways. The partial failure of a bomb has already been mentioned and it must also be remembered that any organization capable of producing a fission bomb will have available large quantities of long-lived radioactive by-products. The use of these by-products as a weapon is quite feasible and the choice of this weapon in preference to some other supplemental attack, such as fire bombs, would be entirely a question of military efficiency, and a choice entirely in the hands of the enemy. As a general rule, long-lived isotopes emit particles of relatively low energy and are, therefore, hard to detect. The deposition of these long-lived contaminants on the ground, in the air, on the surfaces of food containers and in the water could constitute an extremely serious hazard and one hard to cope with.

The measurement of these contaminants would be a laboratory problem, and sensitive counters of the type illustrated in Figure 6 would be called upon for this purpose. The laboratories employing this type of equipment are already in existence, but probably additional laboratories widely dispersed from probable targets should be planned.

We have endeavored in this presentation to show the instruments available at the present time in relation to the problems for which they are suitable. Two general problems still exist: (1) all of the instruments mentioned are extremely scarce at the present time, and (2) aside from the film monitors, they are all quite expensive. The portable instruments illustrated average about $250 each. Efforts are being made to develop instruments having the same characteristics on a mass production basis, and at a low cost. When these new instruments appear, however, they will not be significantly different in operation or application from their prototypes described here.

MSMS

DEVELOPMENT, USE AND EFFECTS OF ATOMIC ENERGY

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behavior in the afflicted area in which a person happens to be at the time. Education and organization will reduce panic and confusion and conserve lives.

In summary, the atomic bomb is essentially a greatly enlarged conventional bomb, with the addition of a nuisance factor, radiation. Its effectiveness is due mainly to its ability to produce so great damage in so short a time. As in any disaster, prompt action and co-ordinated effort, along with a few minutes' warning, constitute at least half of the battle.

Suggested Reading

Hecht, Selig: Explaining the Atom. New York: Prentice-Hall.

Lapp and Andrews: Nuclear Radiation Physics. New York: Viking Press.

Cork: Radioactivity and Nuclear Physics. New York: D. Van Nostrand Co.

U. S. Government: The Effects of Atomic Weapons. U. S. Government Printing Office, Washington, 25, D. C.

OPERATING COST OF HOSPITALS UP

A survey conducted by the Detroit Area Hospital Council revealed that hospital operating costs here are rising sharply.

"The institutions began to feel the impact of spiraling prices right after the Korean war opened," declared John M. Jenkins, president.

"Our study showed that the cost of everything—food, drugs, supplies and payrolls—have shot up," the official added.

In the past several months, he said, the inflationary trend became sharper.

"The effects of nominal rises in charges made by the hospitals," Jenkins explained, "already appear to have been wiped out."

Increased cost of laundering linens, one of the most important items, was held out as a striking example of the change.

This has risen 36.5 per cent. Salaries alone jumped 24.5 per cent in hospital laundries.

The Detroit Area Council includes the majority of hospitals in the seven counties of Southeastern Michigan. —*Detroit Free Press,* January 28, 1951.

Pathologic Changes Produced by the Radiation Effects of the Atomic Bomb

By Osborne A. Brines, M.D.

Detroit, Michigan

THIS DISCUSSION will concern damage to tissue cells produced by the radiation emitted during detonation of the atomic bomb and will be based on animal experimentation and the clinical and autopsy findings following the bombing of Hiroshima and Nagasaki. We are accustomed to consider the injurious effects of irradiation in their application to the treatment of cancer with large doses being applied to small areas. Thousands of roentgens may be given to a small confined region of the body without causing serious injury except to the exposed area. However, the effects of the atomic bomb involve total body irradiation in which a lethal dose may be only one-tenth or one-twentieth of a therapeutic dose often employed in the treatment of cancer.

The type of tissue damage is the same regardless of the form of ionizing radiations to which the cells are exposed—roentgen rays, gamma rays, alpha and beta particles, neutrons—all having essentially the same qualitative effect. It is well known that certain tumor cells are more susceptible to damage by irradiation than normal cells; in the same comparative manner normal tissue cells vary in degree of radiosensitivity. Thus, lymphocytes, granulocytes, epithelial cells, bone marrow cells and endothelial cells are most easily damaged by radiant energy.

Many theories have been advanced to explain injury from ionization, but the mechanism is still unknown. The immediate effects of irradiation on cells consist chiefly of suppression of mitotic activity, nuclear fragmentation and swelling and vacuolation of the cytoplasm. Depending on the size of the dose, a varying number of cells will be completely destroyed; others may be temporarily damaged but may recover; others may resist damage entirely. Undamaged and recovered cells proliferate and provide the means of repair and regeneration of the damaged tissue. If the percentage of completely destroyed cells of an organ or an area is high, the function of that part will be greatly impaired. Should that organ be the bone marrow, hematopoiesis and leukopoiesis will be depressed; should it be lymphoid tissue or the reticulo-endothelial system, defense against infection may be impaired. If the cells lining the intestine are destroyed, an important barrier against infection is removed. The organs most significantly damaged by the radiation from the atomic bomb will be the skin, intestines, gonads and hemopoietic tissues.

Those exposed to massive doses of radiation, probably within 1,000 yards of the epicenter, but not otherwise injured, may develop the syndrome of radiation sickness consisting of nausea and vomiting, anorexia, malaise, diarrhea, thirst, fever and coma, with death from shock occurring in the first or second week. Those at a somewhat greater distance may have milder symptoms but may die between the second and eighth week. The onset of these symptoms may be within an hour; occasionally the onset is delayed for days or weeks. Among the Japanese there were but rare instances of severe radiation injuries developing in people who were more than 1,500 yards beyond the epicenter.

The skin and its appendages will receive the maximum dose of unfiltered radiation. In previous experience it has been difficult to distinguish between skin damage due to burns and that due to radiation. At Nagasaki and Hiroshima epilation occurred two weeks after the atomic bombing and affected males and females alike. This was due to destroyed function of the cells of hair follicles.

Early intestinal changes appear to be initiated by direct damage to the surface epithelium by ionizing radiations. Infection then complicates the picture, ulceration and hemorrhage ensue and it is difficult to evaluate leukopenia as a cause of these ulcerations. The large intestine is most severely involved. The gross pathologic picture simulates that of bacillary dysentery. Septicemia may result.

In the testis profound histologic changes have been found to occur chiefly in the germinal epithelium, suppressing, at least temporarily, spermatogenesis. Sertoli cells are partially preserved and from these the germinal epithelium regenerates. The Leydig cells are apparently unaffected. The relationship of this change to permanent male infertility has not been finally established. The ovary is less susceptible to damage than the testis, and while menstrual irregularity was en-

countered frequently in Japanese women following the bombings, permanent sterility was apparently rare.

The spleen and lymph nodes undergo hypoplasia of the lymphoid tissue and the malpighian corpuscles and lymph follicles disappear, leaving an almost empty reticular stroma. This phase of exhaustion is followed by proliferation of atypical cells often resulting in hypertrophy of the lymphoid tissue. The ability to regenerate is probably due to some of the large reticulum cells in the germinal centers having escaped destruction.

The peripheral blood picture changes abruptly. There may be a severe granulopenia and lymphopenia within a few hours due to the direct destruction of these highly radiosensitive cells. The leukopenia is an important laboratory feature because it parallels the severity of the damage and reflects the prognosis.

The cells of the bone marrow, particularly the immature granulocytes and erythrogenic forms, are radiosensitive. The reticulo-endothelial system is, fortunately, comparatively radioresistant, and from these spared precursor cells regeneration usually occurs quite promptly. Following heavy exposure, hypoplasia may result in a totally aplastic marrow which grossly appears pale and translucent. Aplastic anemia and thrombocytopenia then accompany the leukopenia. Purpuric manifestations may result in petechial and ecchymotic hemorrhages and may account for mucosal hemorrhages in the gastrointestinal and urinary tracts. The anemia may persist after the marrow has become hyperplastic, suggesting a maturation defect. In a few instances the aplastic anemia is persistent and fatal.

Endothelial cells are readily damaged. The intima of vessels becomes swollen, producing narrowing and often leading to thrombosis. Increased capillary fragility is likewise produced. The large vessel changes might conceivably result in the production of small infarcts, but none was reported in autopsy protocols. The capillary bleeding would contribute measurably to the anemia.

Other organs have been found to be damaged but it is difficult to distinguish damage due entirely or primarily to irradiation from leukopenic necrosis. These organs include the pharynx, esophagus and adrenal cortex; the degeneration and atrophy of the latter is important although regeneration is probably prompt. Necrotizing pneumonia frequently develops but, like ulcerations of the oropharynx and alimentary tract, is probably dependent on agranulocytosis as a causative agent. The epiphyseal region of infants and children is particularly reactive to radiation. In the eye, radioconjunctivitis occurs with moderate doses. Lenticular opacity occurs in young eye tissues with moderate doses but mature lenticular structures are not readily damaged.

Conclusions

Air burst atomic bombs may produce lethal effects over an area of less than two square miles and measurable effects over an area of three square miles as a result of the gamma radiation emitted. Death may occur promptly following exposure of all or a large portion of the body surface to more than a full erythema dose of irradiation. Such deaths are probably attributable to the direct effect of irradiation. Removal of the barriers against bacteria and depression of the resistance of the host may result in generalized infection. Anemia in these patients may be due to loss of the erythropoietic function of the marrow, hemorrhage from ulceration, direct damage to capillaries, disturbance of the clotting mechanism causing purpuric bleeding, and dietary deficiency due to anorexia.

Fortunately, ionizing radiation injuries are numerically the least important of the atomic bomb casualties. In nonfatal cases these lesions tend to be self-limited and self-healing, recovery depending on proliferation and repair. Therefore it is important to protect the patient against the secondary effects of irradiation and to utilize all supportive measures possible. Antibiotics and chemotherapeutic agents will be necessary to combat infection. Whole blood and plasma will be necessary to replace the red cell mass and the blood volume. Malnutrition, protein deficiency and avitaminosis will follow nausea and anorexia due to intestinal lesions and must be vigorously guarded against.

Late effects of irradiation are unpredictable but speculation has doubtless led to unfounded fears. While it is true that exposure to radiation has been cancerogenic in some instances, e.g., leukemia, bone sarcoma, skin cancer and carcinoma of the bronchus, it must be remembered that continuous exposure to small doses of these agents for a considerable period was necessary.

The effect which exposure to total body irradia-

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Blood Procurement in Time of Disaster

By D. H. Kaump, M.D.
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and
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THE PROCUREMENT of blood in the event of a major disaster, such as would be caused by atomic bombing, entails two considerations: first, an estimate of what the blood needs might be, and second, the actual mechanics of procurement.

In an attempt to determine how much blood should be made available when an atomic bomb explodes over a given target area, knowledge concerning the effectiveness of the bomb is highly important. Experience with this type of disaster is extremely meager, and for the most part is limited to that which pertains to the two bombs dropped over Japan and the subsequent experimental bombings. It is now believed to be determinable by the area on which the bomb will fall and by the height above or below the ground level at which it will explode. If the explosion were to occur at the optimum height of approximately 2,000 feet above ground level, over the metropolitan area of an average American city, and in a surprise daylight attack, the number of casualties could be estimated to be approximately 100,000 to 120,000. With adequate warning and civil defense preparation, this number would probably be reduced by approximately one-half. Accordingly, then, our estimate of the blood needs should be based on the probable total of approximately 50,000 casualties, assuming that only one bomb would be exploded at the optimum height of 2,000 feet above ground level. It may be assumed further that of the 50,000 casualties, approximately 20,000 would be killed immediately and the surviving 30,000 would require medical attention.

For those persons injured, the medical effects of the atomic bomb may be roughly divided into three categories: (1) trauma, (2) burns, and (3) radiation injury. It is conceivable that many of the casualties will suffer more than one type of the injuries listed.

Approximately 50 per cent of all surviving casualties will have mechanical injuries produced by the blast force of the explosion or by trauma from flying debris. For those so injured, blood and plasma, or blood substitutes, will be needed, principally for the immediate treatment of shock and to replace the blood lost by hemorrhage from lacerations and following amputations. Whole blood transfusions will also be indicated later to shorten convalescence and combat anemia incident to possible infection.

Sixty per cent of the surviving casualties will suffer varying degrees of burns, either as flash burns, the direct result of the action of the radiant energy, or flame burns from burning clothing and from coming in contact with other burning objects. The latter will probably be relatively rare. This group of patients will require blood, not only to combat shock, but also as supportive therapy, extending over periods of one to several weeks.

It is estimated that only approximately 15 per cent of the casualties will suffer chiefly from radiation injuries. Radiation injury to tissues is by a process of ionization, known as ionizing radiation. This process may affect the body as a whole, but more especially the skin, gastrointestinal tract, testes, ovaries, and the hematopoietic system. Whole blood will probably not be immediately needed for this group of injured. Those persons who develop shock after massive doses of irradiation will have poor prospects for recovery. For a great number of those exposed to moderate to lethal doses of irradiation, and for those subjected to lesser exposures, whole blood transfusions given until the bone marrow regains its power to regenerate blood cells will undoubtedly prove to be life-saving measures.

The number of units of blood needed per week may be estimated to be equal to the number of casualties surviving on the first day after the attack. Thus the surviving 30,000 casualties will probably need approximately 30,000 units of blood during each of the succeeding four weeks. At the outset, this product will in all probability be used in the treatment of mechanical and burn injuries, and during the latter part of the four-week period, the individuals affected by the ionizing radiations will require progressively increasing amounts.

Whole blood cannot be stored for more than

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three weeks because of the deterioration of the erythrocytes. Therefore, it would be highly desirable to stockpile plasma, blood derivatives and blood substitutes which can be stored for much longer periods. These substances may play a useful role in the initial supportive treatment if used according to certain specific indications. However, their usefulness may be limited for they lack oxygen-carrying power. Moreover, their value has not yet been fully determined, because they have not been widely used by the medical profession in recent times. While it is difficult to foresee how effective blood substitutes, such as the recently proposed polyoxygelatin solution and electrolyte solutions may prove to be, they should nevertheless be stockpiled in quantities at least equal to the total units of whole blood.

At the present time, the normal procurement of whole blood in the Detroit area is in the neighborhood of 1,500 units per week. Of this number, about 1,200 units are for local use and 300 units are being supplied to the armed services. These same estimates might well apply to any other similar area. In an emergency when approximately 30,000 units of blood per week would be needed, the present rate of procurement should be increased at least twentyfold.

In time of peace, the normal blood needs are met through donations by volunteer and professional donors. Most of the hospitals in this state maintain individual blood banks. In some areas community blood banks as well as the State Department of Health provide additional facilities for the procurement and distribution of blood. Community banks are usually those which are maintained under the auspices and through financial assistance of the American Red Cross. Regional blood centers serving one or more counties, with the approval of County Medical Societies, are of this type. The donations to such banks are by volunteer donors who respond to the appeals of the Red Cross to perform a civic duty without any definite expectation of recompense. This method of blood procurement has proven most successful in small communities where the population is stable. On the other hand, in larger centers some inducements must be offered to stimulate donations to the community blood bank. The Detroit Regional Blood Center has found the credit system to be very helpful. Labor and fraternal organizations as well as church groups are permitted to establish credits by depositing units of blood numbering up to one hundred. These credits are then drawn upon when the blood is needed for transfusions of members of these organizations or their families. Replenishment of dwindling credits is accomplished by arranging for group procurements by means of mobile units from the Regional Center or by having the donors come to the Center directly. The State Department of Health blood program is carried on in a manner similar to that of the Red Cross Regional Centers, except that it is in relation to a county rather than an organizational group.

In an emergency, the civilian population is suddenly called upon to respond to an extraordinary demand for blood and plasma. If facilities for the procurement of such quantities are established beforehand, the problem is not a difficult one to solve. Usually, the existing facilities such as those of hospital blood banks, the Red Cross, and the State Department of Health can be extended to cope with a moderately great emergency. However, a catastrophic situation of a magnitude as would develop after an atom bomb explosion would create a problem that is less easily solved. Therefore, it becomes necessary to make extensive preparations a long time in advance. The sudden demand, not for hundreds, but for thousands of units of blood, must be anticipated. To provide this product quickly, it is imperative that so-called universal donors become available in the shortest possible time after the explosion. It is for this reason that the extensive program of blood grouping advanced in this State is to be considered a sound procedure. The National Security Resources Board and the Federal Civil Defense Administration agree to the general principle of preparedness blood grouping when these projects are related to blood procurement and identification of group O donors. Potential donors will then be known according to their blood types and can be called upon when procurement of blood on a very large scale becomes a necessity.

In the early phases of a major disaster, the existing facilities for the collection and handling of whole blood would be taxed to the utmost, and it is probable that the stricken area could not supply over 2 per cent of its immediate needs. In view of the estimates here advanced, this would indeed be a negligible amount. In this phase, the stricken area would have to depend on surrounding areas

for assistance. During the second week of the disaster period, the facilities in the affected area probably could become so well organized that about 25 per cent of its needs would be procured locally, but still 75 per cent would have to come from other sources. By the fourth week, most of the needs might be met in the area itself.

To facilitate procurement on the scale implied by the estimates advanced, it is here proposed that teams be organized for service at designated stations. Each team should consist of three nurses, three nurses' aids, two technologists, and two clerks. Each team would then be able to procure and process whole blood at the rate of three units in approximately ten minutes. In a five-hour period, each team should be able to collect ninety flasks of blood, provided the donors are present and sufficient containers, glassware, typing sera and the necessary equipment are assembled at the designated stations. Each station would have to be planned to accommodate two teams at the same time. A physician would be required for each two teams. Working in five-hour shifts, three shifts a day, five days a week, the personnel numbering 180 nurses, 180 nurses' aids, 120 clerks, 120 technologists, and thirty physicians could be divided among ten stations. Under such an arrangement, the blood procurement would amount to 27,000 or more flasks per week.

Inasmuch as a period of training is desirable to acquaint the members of each blood procurement team with certain details of procedure, particularly the use of the equipment, courses should be organized. It would also be expedient to have pilot procurements arranged at regular intervals, in order that greater familiarity with the facilities might be gained, both by the personnel of each station and the public. The American Red Cross has been designated the agency through which advice and assistance might be obtained and already has extensive experience in the procurement of blood with mobile units and should be invited to participate in these experimental endeavors. Properly planned and regularly used, the designated casualty centers should serve to develop efficiency for the production of whole blood, plasma and other blood derivatives for some of the peacetime needs, and in the stockpiling for emergency use. These centers could also be utilized in the preparedness blood grouping project since each donor coming to the center would be typed and recorded.

On the basis of estimates, it will be necessary to stockpile approximately 150,000 blood collection and dispensing sets at strategic points throughout the state, preferably in those areas in which the greater numbers of potential donors normally reside. Plasma, blood derivatives and blood substitutes should likewise be stockpiled at such centers in quantities equal to or greater than the estimated requirement of whole blood. Consideration should be given to the orderly creation of the proposed centers. Each blood procurement team should be provided with six donor tables and three service tables. Adequate refrigerators or transportable refrigerated containers for storing the blood after procurement must also be assembled.

It would be inadvisable to simply acquire this equipment and store it. It should be used continuously, even if only at intervals. These intervals, however, must not be longer than four to six weeks for each center. Should a disaster occur, then the already established peacetime facilities could be readily supplemented, with greatly lessened confusion and on the scale desired.

In the first few days following a disaster routine blood grouping and cross matching might not be practicable if the immediate needs of the thousands of casualties are to be met. During this earliest period reliance would have to be placed on group O blood and possibly on blood substitutes. During this period, also, the donors identified beforehand would be called upon. It is even possible that, with continued practice as here proposed, the emergency centers might be able to provide the desired check blood grouping and cross matching services which are so important before transfusion. These procedures would be greatly speeded and simplified if previous preparedness typing of the donors had reduced to an insignificant number the AB, A, and B donors who might present themselves in time of emergency.

The other recommendation for improving and facilitating the large scale procurement of blood in time of a great emergency would be to develop an educational program. It should be so organized that everyone will be made cognizant of his responsibilities to participate in the endeavors for community protection and service. The need for knowing one's blood type should be stressed. The value of stockpiled plasma for men on the battlefield and for civilians in the target areas should be emphasized. The estimated emergency needs

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Medical Problems of Evacuation

By Arthur B. McGraw, M.D.
and
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IN PREPARING this article an attempt has been made to apply it to the State of Michigan, and in particular its industrialized areas, but not from the particular point of view of any one area. Each reader, however, should view his reflections after reading from his *own* point of view—where he lives, where he does his work, whether an atomic bomb attack would find him in a target area, or safely at the periphery of a bombed area ready to help care for its casualties, or too far away to be of any early help.

The basic, prime and immediate problems facing thickly populated and industrialized targets of an atomic bomb attack will be to limit spread of destruction by secondary fires, appraise the kind and degrees of structural damage to various facilities, and to set about rendering the area first livable in the simplest terms for the uninjured of the population and then again industrially productive even at a greatly reduced level in the shortest possible time. Collective acceptance of this attitude by the citizens of a stricken area may well be the best antidote for the panic and chaos which is an enemy's dearest hope. Every personal wish and instinct must be subordinated to what will further the country's total war effort. Included in that subordination to perhaps terrible and ruthless degrees will be the handling of casualties.

Along with other *adult uninjured residents* every uninjured member of the medical profession should remain in the area and serve there to the best of his ability, and his training and skill will be best utilized in one of the following activities: (1) aid in the selection of casualties to be evacuated out of the area, (2) temporary care of severe injuries, (3) definitive care of minor injuries, (4) advice and authority in control of sanitation.

1. Of the above, the first will be by far the most difficult and important, for in terms of the total war effort it will be of paramount necessity to aid the salvage and prompt recovery of every injured person who can later resume his former or some other useful task. It will be essential that every uninjured doctor secure information at the earliest possible moment of (a) the epicenter of burst, and (b) whether or not any dangerous radioactivity will result from the type of burst and over what sector from the epicenter. As soon as he secures such information, he can determine with fair accuracy, (a) which of the area's hospitals may still be intact or useable, and (b) where, according to circumstances, he should strive to go in order to be of the most use. Since many doctors may well be among the dead or seriously injured, the community will have to be educated to accept the fact that surviving doctors will have to work where they can help clear the largest number of injured with a good chance of recovery, and not to expect that they will necessarily remain and try to care for casualties in their immediate vicinity. Crews of laymen will have to bear the burden of collection and transport of non-ambulatory injured to collecting stations for temporary care. Those will be located in appropriate buildings along the various channels for evacuation leading out of the area. They will have to be selected and designated in advance for each main highway leading out of an area, and used according to their availability after a bomb has burst.

2. It will be at such stations for temporary care that a doctor assigned to selection can perform his tasks most effectively. He alone will have the training to make rapid and reasonably accurate appraisals of the kind and nature of injuries and the prognosis for survival and rehabilitation. Those with good prognoses will best be moved at once to further existing or temporary emergency hospitals at the periphery or in nearby communities. Others with uncertain or poor prognoses or for whom lengthy transport would be extremely hazardous will be taken to existing hospitals within the attacked area or to buildings temporarily adapted for hospital use. It goes without saying that at these collecting stations there should if possible be one or more doctors and many trained volunteer laymen available for emergency care and nursing in addition to those doctors solely concerned with selection and distribution. Surviving local hospitals should be manned as quickly as possible by those of their staff who have not been designated to serve

From the Division of General Surgery, Henry Ford Hospital, and the Division of General Surgery, Highland Park General Hospital.

in temporary hospitals and should receive to their utmost capacity for care those seriously injured victims not fit for transport out of the area. It may even be advisable for these local hospitals to move every one of their current patients not in dire need of hospital care out into homes in their immediate neighborhood.

3. In order not to clutter the collecting stations and usable local hospitals with minor and ambulatory injuries, a large number of small buildings should be designated as first aid stations for care of minor injuries and manned by volunteer trained lay workers working under as much medical supervision as the number of surviving doctors permits.

4. The doctor's responsibilities in connection with sanitation in the event of an atomic bomb attack will be concerned mainly with water supply, with food, with disposal of human and other wastes, and with the detection of radioactive products of atomic fission. Water supply may be interfered with by contamination, by damage to the piping of dwellings, by fracture of mains and even destruction of a city's propulsive machinery. Extensive interference with water supply will entail breakdowns in facilities for disposal of excreta and other wastes, and primitive methods will have to be tolerated temporarily by rich and poor alike. Much food may spoil for lack of refrigeration and distribution of safe food may temporarily be badly disrupted. Furthermore, water, foodstuffs, utensils, buildings, and even the clothing and skin of individuals may become contaminated by radioactive fission products of the burst.

A pressing responsibility of doctors, and health officers is to alert public officials and producers of all kinds of medical and surgical supplies to the urgent necessity of stockpiling large quantities of these materials well on the periphery of large industrial concentrations in order that the large part of the city's supply of such necessities may not be destroyed or contaminated at the time of an atomic bomb explosion. Dependence on current supplies of nearby communities will not begin to meet the need. In addition to supply, the peripheral deployment of some facilities for emergency manufacture might well be considered.

In addition to doing everything in his power *after* an atomic bomb attack, every physician, whether his practice be urban or rural, general or specialized, should begin *now* to familiarize himself thoroughly with the most up-to-date and practical methods of handling burn cases in great numbers, the emergency treatment of fractures and compound injuries, the fundamentals of sanitation in the face of impaired normal facilities and in the kinds and severity of human injury caused by radiation or the absorption of various amounts of the different kinds of radioactive products released by atomic fission.

Though based on study and much thought about the duties and opportunities for physicians under atomic bomb attack, particularly as regards the value of their services in the evacuation of casualties from a bombed area, the above outline does not pretend to be either complete or authoritative. It is offered mainly to provoke serious interest, thought, criticism, and suggestion by any licensed practitioner in this state. Unlike Europe, the British Isles and Japan, the mainland of this country has never been subjected even to high explosive, let alone atomic, bombing. Such experience as the masses of our population have is thus far only by hearsay and such instruction as has recently become available. The problem of survival under and rehabilitation after an atomic bomb attack is exceedingly complicated, and planning has to be done with regard to the unpredictable combination of an immense number of variables. Only a group of plans that can achieve a few fundamental and commonly agreed aims by means of an exceedingly elastic and flexible adaptation of details in varying situations can hope for much success.

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RADIATION EFFECTS OF ATOMIC BOMB

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tion might have on fertility and child bearing, the length of the life span and the offspring of exposed individuals will require years of observance.

This discussion has been predicated on the assumption that an atomic bomb will be detonated several thousand feet in the air and that damage to personnel will be chiefly in the form of gamma rays. An underwater explosion involves a difference in physical qualities and distribution of the ionizing radiations. However, in addition to exposure to external irradiation, internal exposure to radiocontaminated food and water might become a hazard. It can easily be seen that much more experience and knowledge is necessary to complete our understanding of this subject.

Decontamination

By Leland E. Holly, M.D.
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IN ANY discussion of modern bombing, the possible occurrence of a certain amount of radioactive after-effect must be taken into consideration.

A high air burst, 1,800 to 2,000 feet above ground on a clear day with little wind, would in all probability produce no dangerous contamination even in the area immediately underneath the explosion. This was true in Japan. The reason for this lack of contamination is that the fission products formed in the detonation are carried upward in the atomic cloud and dispersed into the atmosphere. Within a matter of minutes those individuals who survive the blast and thermal effects could enter a bombed area with little fear of receiving harmful radiation. In an air burst, under adverse atmospheric conditions of fog, rain or high humidity (conditions simulating in some respects a low ground or underwater burst) harmful residual radiation might remain. This serves to emphasize the indispensable role of the meteorologist in the whole of the defense setup.

In a low ground and an underwater burst, surface radioactive contamination plays an even more important part. Contamination occurs not only in the immediate area of epicenter but in the "fall-out" area of the atomic cloud. The length of dangerous contamination depends upon the rate of decay of the radioactive products.

Decontamination Procedures

One of the primary purposes in any decontamination is to prevent internal absorption of radioactive material by personnel who may be forced to work in a bombed area. The question, then, of whether or not to actively attempt to decontaminate an object or an area depends upon (1) the particular necessity of having the object or area available, (2) the risk involved in the procedure, and (3) whether or not one can expect satisfactory decontamination if it is undertaken. While we can assume that after a certain time safe self-decontamination will occur, in cases of emergency personnel may have to enter the radioactive area though only for a few minutes per day or per week. In such instances there must be rotation of personnel. Most frequently, the contamination is located on the surface, notable exceptions being water contamination and the contamination of porous material. The maximum allowable exposure for continuous occupancy of an area must not exceed 0.3 roentgens per week.

Removal and disposal of a contaminated surface either by ground burial (Oak Ridge) or water burial (Berkeley) or possible burning is in some instances feasible. Care must be exercised in not re-contaminating other areas or objects. Wet sand blasting offers another satisfactory method for the removal of surface contamination, especially of the walls of buildings or ships. In some instances, much less drastic means may be employed, such as use of sandpaper, polishing pads, steel wool, et cetera.

Chemical procedures may also be applied. The chemicals must be available in large quantities, they must be inexpensive, non-toxic, non-corrosive, non-inflammable and readily disposable. Aqueous solutions are preferable since they can be handled easily and conveniently by standard fire-fighting equipment, sprinkling systems, et cetera.

In general, the chemical procedure is based either on merely wetting the surface, thereby producing a waste material of rather high activity but which is of easy disposal, or on flooding the surface and thus washing away the contaminating material. Each case presents its own peculiar problem. There is reason to believe that a body of water such as a river or lake will decontaminate itself quite readily due to the suspended material acting as an absorbing surface or by hydrolysis.

Painted or varnished surfaces may be cleaned with suitable chemical removers. Live steam and detergents likewise remove a small surface film and thus decontaminate the surface.

Dusts can be collected in suitable containers or arrestors, such as vacuum cleaner, et cetera, and disposed of as mentioned above.

Another method would be to change an insoluble radioactive substance to one that is soluble and thus be able to wash it away. Bear in mind, however, that changing the chemical composition of a radioactive substance *does not* alter its radioactivity, it only may make it amenable to manipulation. Among the decontaminating agents thus used are the detergents, Tide, Dreft, et cetera. Significantly, the addition of sodium bicarbonate

to a detergent will increase its decontaminating efficiency. Water alone is a poor decontaminant; it acts only as a diluent with little penetrating effect.

In these and any other methods of decontamination, we again wish to emphasize that this is a transferal of harmful radioactive material from a location dangerous to health to an area or location where it will cause no harm to life. We still must dispose of the material.

Human Decontamination

Human contamination in those surviving an atomic bomb will be largely confined to the exposed body surfaces and clothes.

The clothes one wears form a suitable barrier to most harmful material. This leaves the customarily exposed portions of the body—head, hands and part of the lower extremities—as surfaces which may become contaminated. Clothes should be removed and buried, with care being used not to contaminate the interior of some building or structure as well as one's own body.

Exposed surfaces, hair, face, body openings, hands, under fingernails, creases, et cetera, can be thoroughly cleansed with soap, water, household detergents such as Dreft, Tide, et cetera. A shower bath, not tub, is ideal as the contaminants are washed down the sewer. Care must be taken in cleansing the human body not to injure the skin, thus creating a focus for easy entry of the material. Some detergents are harmful to the skin and must be avoided. Since the normal skin is slightly acid, the addition of sodium bicarbonate in concentration of 15 to 20 per cent to the detergent usually results in thorough rinsing. Great care must be taken by those engaged in personnel decontamination to avoid contamination of themselves.

City Decontamination

Here, again, time is a most potent decontaminant. If it seems desirable to institute specific procedures, one should consider wetting to prevent inhalation of radioactive dusts from surface contamination. The use of wetting agents is quite satisfactory for the coarse particles but has little effect on the "fines." Washing with fire hose, the use of refuse removers and sweeping equipment, as well as all of the procedures mentioned for surface decontamination, are applied. Ground contamination (sod, et cetera) should be plowed under and kept wetted to prevent radioactive dusts from rising. Benches, clothing and small items which are combustible should be burned in suitable incinerators to prevent dispersion of radioactive smoke and ashes.

Food and Water Decontamination

Water, in an urban area, is a real problem. In any bombing, inhabitants of cities and those dependent upon a public water supply should at once draw water into containers which can be closed and sealed. If radioactive fission products are liberated, the outside of these containers could become contaminated, but with the opening protected by caps, double covers, et cetera, the contents can be used subsequently. Foods that are canned or wrapped in protected packages are highly desirable. It would not be out of line perhaps to again mention the importance of having on hand in cans or protected packages sufficient food for several days' or weeks' use. These cans can be washed thoroughly or the outside wrappers carefully removed and disposed of without contaminating the contents.

Disposal of Radioactive Wastes

The problem of disposal of radioactive wastes from a contaminated area is being explored along several lines: (1) concentration and confinement until all activity has ceased, (2) incineration, and (3) dilution beyond the harmful concentration stage. Activated sludges, bacterial slimes, dust collection and filtration—all are being used experimentally in the disposal of harmful radioactive waste products.

References

Note.—This information on decontamination was obtained from lectures and the following publications:

1. Hearing before the Joint Committee on Atomic Energy of the Congress of the United States.
2. Survival Under Atomic Attack, 1950. Washington, D. C.: Superintendent of Documents, U. S. Government Printing Office.
3. The Effects of Atomic Weapons, September, 1950. Washington, D. C.: Superintendent of Documents, U. S. Government Printing Office.

MSMS

X-ray films of suspected bone cancer should include a large area adjacent to that about which the patient complains. Stereoscopic views should also be made. Also, chest films, both postero-anterior and lateral, should be made at the same time.

Survival Shelters, Emergency Supplies and First Aid Kits

By John J. Grebe, Ph.D.
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THE following subject matter is intended to augment the excellently prepared articles, bulletins, moving picture films, and books that are available on the general subject. Some of these are listed in the appendix. In addition to the contents of these publications, the medical profession should also know the broader picture of the hazards to be expected for guidance of practical and economically sound civil defense efforts. Most people will overlook the significance of a statement made in the Armed Services educational film, "Medical Services in Atomic Disaster," in which it says: "One plane—One bomb—One city." This should be taken literally. The area of a city might be 150 square miles, and still one bomb may be sufficient to destroy it. This is due to the fact that the bomb, while taking with it only several square miles, produces an updraft immediately following the blast. The rising cloud of hot gases serves as an enormous chimney that makes the entire city into a fireplace.

Even with incendiary bombs used alone, as they were in the Hamburg raid, similar chimney effects were obtained which, when once started, produced winds across the city toward the base of the chimney of gale intensity. Any fires accidentally started or set by very few incendiaries reaching ever widening circles will burn down all of the city that can be ignited from intense, circumferential fires in a converging wind. Even fireproof buildings will add kindling. Windows, if not broken by the blast, will be smashed by the flying debris which will ignite the contents. Even large park and water areas may be jumped by flying embers.

Nor should we think in terms of radiation, blast, fire and wind damage alone. If the enemy chooses to preserve an area physically for future use, but to make it unlivable for some time to come, that too is possible with the A-bomb. The direct effects from radiation, shock and a mad scramble out of the area will leave many casualties behind.

In other words, the bomb may be used to insure the entrance through millions of broken windows of bitter cold winds, as well as chemical, biological and radiological agents that will leave their human toll, although not destroying any more than what the enemy considers most desirable for immediate crippling of transportation and production, and for getting rid of populations that do not go along with their philosophy.

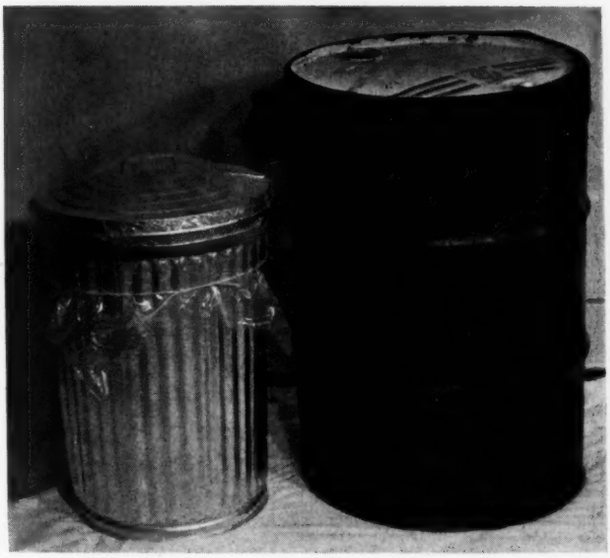

Fig. 1

Finally, we should expect the most potent and insidious type of attack—psychological warfare—in combination with any of these approaches. These will range all the way from the use of various materials that dement and torment people, to carefully incited, cool, calculated, precisely executed sabotage. The major enemy effort is to be expected in the line of producing a vacillating, uncertain, compromising, or overzealous administration of vital defense offices that leaves everything in a turmoil. A different slant can be expected at each city.

The tremendous success of psychological warfare techniques, as currently practiced on both sides of the iron curtain, as evidenced from ordinary news items that seep through, leaves one with more of a shudder about what can happen here than all the information on what an atom bomb has done in the past, or is likely to do in combination with other known techniques in the future. Certainly, the Reds will improve immeasurably on the highly successful Nazi efforts.

These general considerations emphasize the necessity for the medical profession as a whole to be the major analyzing, rationalizing and stabilizing influence in a community. The writer can say that,

being entirely outside of that profession. This is a responsibility far beyond any you may have visualized in the past. It is definitely beyond what you will ever get credit for or be appreciated for, by the population as a whole. It is the price of leadership.

Now, then, what will we do about the problem as defined above? The first and most important aspect is that each citizen must recognize that the major preparation cannot, and will not, be done for him by any federal, state, or local agency. The typical American capacity for independent judgment and individual responsibility with freedom of action will prove our secret weapon for survival when it comes to a pinch. Americans do co-operate and pull together but they also use their individual heads. The danger of over-organization and over-regimentation cannot be stressed enough. Co-ordinated effort on a voluntary basis will bring effective protection. We must recognize that even if the worst does happen here, and half our homes are denied or useless, we will still be better off than the early settlers who built our country. Even if all power, communications, and public transportation fail and all the cities are uninhabitable, we will still be ever so much better off than the people who built this nation under peacetime conditions.

We have a wealth of land sprinkled with farm homes that can be operated independently, as well as millions of summer homes, cottages and hunting lodges. Even the enormous amount of camping equipment within our nation would provide luxuries compared to what was available to the early settlers. For this reason, it is important to make sure that our cottages, our automobiles, our gasoline supply, our camping facilities, our stored food and water and other necessary supplies and tools be protected against general fires.

Fig. 2

Looking at it from this angle, it is obvious that no external agency could possibly take care of this sort of thing for the individual. If it tried to, it would break our economy because of the excessive taxes and excessive cost of the government doing a thing for people that they should do themselves in their own spare time.

Each person should see to it that the things he and his family will need the most will survive a general fire in the area. One does not need to worry too much about radiation and blast effects from atom bombs; after all these would cover only a small area, which might well be left without survivors by suffocation and carbon monoxide poisoning due to the smoke and heat from the

surrounding area being sucked into the chimney rising from the center of the blast.

The best form of survival shelter is a root cellar or cyclone cellar, such as our early settlers could not get along without. In fact, with the doors properly sealed and the cover supported on a porous framework and made of ordinary top soil, preferably good humus and grass, there is enough ventilation by diffusion through the humus to protect the people inside from biological and chemical agents at the same time that it protects them against fire and minor blast and radiation hazards. One square yard of diffusion surface should suffice for one occupant. Actual tests should be made on each structure to make sure it is adequate.

The next best protection might well be steel and concrete structures, which, however, depend upon forced ventilation, air filters and a source of power.

The kind of equipment that most urban dwellers may well see fit to provide will be a modification of a basement room, taking advantage of a door or window opening as an escape directly to the outside with an extra-strong fireproof ceiling and the usual concrete or cinder block partition. The emergency exit should be amply identified outside. The two doors must be particularly well built and fitted and should be made up of a fireproof and heat-resistant diffusion wall, such as a product called Kay-Lo, which consists of diatomaceous earth bonded with calcium silicate. Wire screens on both sides of a frame filled with charcoal for diffusion panels should make a very good door. Similarly, the ceiling may well be made of a new permeable product consisting of a thick layer (up to 4 inches) of fibrous materials, such as excelsior fireproofed and bonded with magnesium oxysulfate cement. Such a material available in large sheets is tough, and would insulate and ventilate by diffusion. Plastering and painting of cinder blocks and cement blocks should be avoided to add to the capacity for ventilation by diffusion.

Finally, there will be many smaller structures and facilities that local conditions and individual aptitudes and desires will dictate. For example, much can be stored in a hole made by removing several blocks from a basement wall and then digging out the earth beyond and lining it with an old drum, rot-proofed wood or even bricks and tile. The blocks may be set back into position to act as a door. Thus, for very little expense one may have many cubic feet of safe storage facilities for some of the most essential tools and supplies.

In other instances, old drums nested and filled with sand between the walls will make flameproof and heat-resistant storage spaces that can be set out in the yard or even partially or wholly buried.

Fig. 3

It is also possible to store ordinary canned goods so densely, and stacked with layers of transite, asbestos paper or metal between each layer, that only the outer cans would be likely to overheat or explode, in case a fire sweeps through the storage space. Chests and cupboards can be arranged to resist burning to the point of giving fair protection to the contents. One should also not overlook the possibility of doing simple things to make a particular cache more safe at the time of the emergency by pouring water onto the sand or soil or cinder blocks that may be used for a fire ball, or before a fire is expected to reach the particular spot.

One of the first things to remember to do is to shut off the hot water heater, both the electrical, gas or other source of heat, and the water valves. This supply of uncontaminated water retained in the tank may mean the difference between life and death.

Every effort should be made to make survival at your normal location possible. This keeps you among your friends and neighbors where psychological attacks are less of a hazard. If caught in a mob, disperse.

Medical supply kits must similarly be reasonable

and practical from the point of view of availability and cost. It is unlikely that a sufficient number of bandages can be bought and stored for each location. On the other hand, old sheets and other articles of clothing that are being discarded should be washed and ironed and securely wrapped with or without dry heat sterilization in an oven. These should then be placed into such tin cans that are normally discarded, for example, potato chip cans and large metal containers obtainable from bakeries and restaurants, and then placed where they are reasonably protected against fire and water contamination. If sealed with solder or tape, they would provide essential supplies that might keep many people from freezing to death in winter after a fire or from death from improper protection against infection for lack of bandages to protect blast and radiation damage. A supply of ordinary soda should be packed with thec lothing for wet dressing of burns.

The appended list of publications, films, and circulars will provide much more detail than one can give in this over-all discussion.

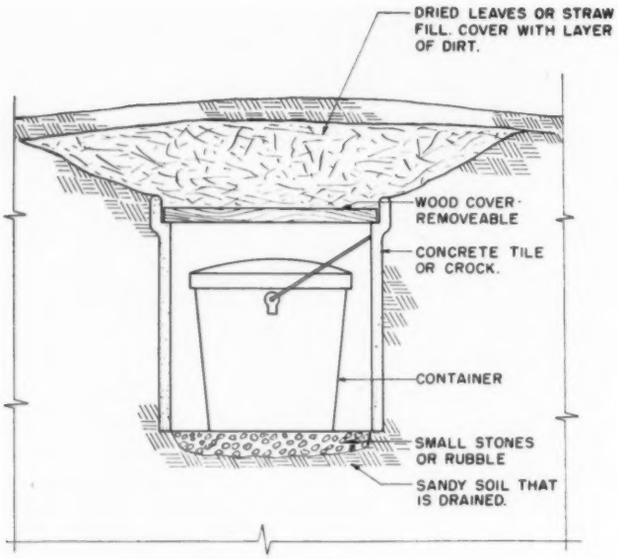
DRIED LEAVES OR STRAW FILL. COVER WITH LAYER OF DIRT.
WOOD COVER REMOVEABLE
CONCRETE TILE OR CROCK.
CONTAINER
SMALL STONES OR RUBBLE
SANDY SOIL THAT IS DRAINED.

Fig. 4

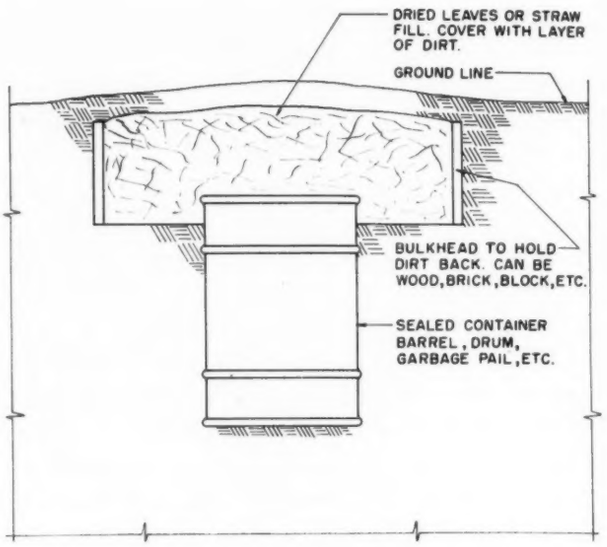
DRIED LEAVES OR STRAW FILL. COVER WITH LAYER OF DIRT.
GROUND LINE
BULKHEAD TO HOLD DIRT BACK. CAN BE WOOD, BRICK, BLOCK, ETC.
SEALED CONTAINER BARREL, DRUM, GARBAGE PAIL, ETC.

Fig. 5

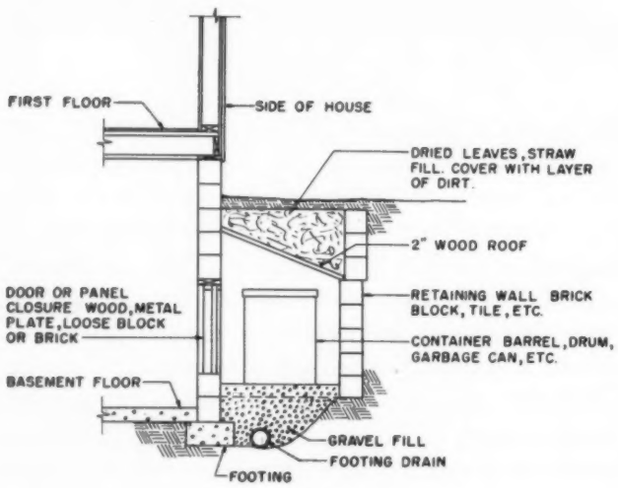
FIRST FLOOR
SIDE OF HOUSE
DRIED LEAVES, STRAW FILL. COVER WITH LAYER OF DIRT.
2" WOOD ROOF
DOOR OR PANEL CLOSURE WOOD, METAL PLATE, LOOSE BLOCK OR BRICK
RETAINING WALL BRICK BLOCK, TILE, ETC.
CONTAINER BARREL, DRUM, GARBAGE CAN, ETC.
BASEMENT FLOOR
GRAVEL FILL
FOOTING DRAIN
FOOTING

Fig. 6

In order to take practical self-help out of the realm of speculation and generalities, the Kiwanis Club of Midland, Michigan, has made a project of building and equipping survival shelters, emergency supplies, and first aid kits. These are illustrated here with pictures, descriptions and sketches (Figs. 1-6).

All these grim thoughts and forebodings will accomplish their purpose if, as we confidently believe, this nation will for once gird its loins in time to prevent attack. Then we will be able to think of these efforts in retrospect as the most satisfying and even delightfully vitalizing experiences. The drones may say "a sheer waste of (otherwise idle) time."

Dow Chemical Co.

Appendix

Survival Under Atomic Attack. Prepared by U. S. Atomic Energy Commission, and may be obtained from Superintendent of Documents, Washington 25, D. C. (10c).

How to Survive an Atomic Bomb. By Richard Gerstell. Two editions: (1) Combat Forces Press, Washington, D. C., distributed by Rinehart & Co., New York ($1.95); (2) Bantam Books, New York (25c).

United States Civil Defense. Prepared by the Office of Civilian Mobilization of the National Security Resources Board. Superintendent of Documents, Washington 25, D. C. (25c).

(Continued on Page 298)

The Management of Patients Burned by Atomic Explosion

By Merle M. Musselman, M.D.
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and
Robert E. L. Berry, M.D.
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IN ORDER TO formulate a plan for the treatment of burns resulting from atomic explosion it is necessary to have an understanding of the medical service problem involved. Because the atomic bomb is efficient only when used against relatively large concentrations of material or centers of population, it is reasonable to assume that Detroit is the most logical target in the State of Michigan. In the event of an atomic attack on Detroit 50,000 casualties (not including those killed instantly) may be expected. Of these, 40,000 will have sustained burns.[14] Since in the State of Michigan there are only 62,233 hospital beds, over half of these being in mental institutions, large additional facilities will have to be provided for emergency hospitalization. Ideally, such emergency facilities would be located outside the target area as close to existing hospitals as possible. Regardless of the number of trained medical personnel available, additional help by civilians adequately trained in the emergency treatment of burns will be necessary in order to save the greatest number of lives. Tens of thousands of casualties will have to be transported some distance perhaps changing hands several times before definitive therapy can be instituted. The estimate of the medical supplies and equipment necessary for treating thousands of burned patients is staggering. If treated ideally, each victim with a burn of 40 per cent of the body surface would require at least forty-two tanks of oxygen, thirty-six pints of plasma, forty pints of whole blood, 100 pints of other fluids, 2.7 miles of gauze, three nurses and two doctors.[14] Because of these circumstances the management of patients burned by atomic explosion must be something less than ideal.

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Dr. Berry is Assistant Professor of Surgery, University of Michigan, Ann Arbor, Michigan.

Nature of the Burn

The burns caused by an atomic explosion may be either of a flame type or a flash type. Many persons will sustain flame burns from the conflagration which follows the explosion, but such casualties will be few since those not seriously injured will escape the fire while the others will perish in the holocaust. The flash burns are produced by tremendous amounts of thermal radiation acting for only a fraction of a second. The radiant energy resembles that of the sun. The rays travel in straight lines and protection against them is afforded by any material casting a shadow. At a moderate distance from the epicenter, clothing light in color and loose fitting provides protection.[2,9,15]

Except that the margins are definitely circumscribed, flash burns are similar to those produced by flame. Experimentally, flash burns are characterized by a coagulative type of necrosis of the epidermis and dermis with eschar formation and subsequent sequestration rather than the organization seen in the non-coagulative necrotic tissue of the moderate temperature burn.[11] In a flash burn of moderate severity the epithelium grows out freely beneath the unorganized eschar so that healing is rapid.

The high incidence of marked keloid formation observed in the Japanese casualties was probably due more to severe secondary infection, malnutrition with attendant slow healing, and increased propensity of the Japanese for keloid formation than to any factor characteristic of an atomic burn.[3,9] Sublethal doses of gamma and neutron radiation increase the seriousness of infection in such burns because of deleterious effects upon the blood-forming organs.

Treatment

Emergency Care.—The casualties from the attack will first be evacuated by litters and vehicles to aid stations located along the main routes of evacuation. Here the patients can be tagged and sorted as to the type and severity of injury and given priority for further evacuation. Pain can be relieved and emergency procedures such as the arrest of hemorrhage or the performance of tracheotomy for laryngeal edema may be carried out. A

hypotonic salt solution* can be prepared from readily available materials and administered by mouth for the prevention or treatment of shock.[16]

Relief of Pain.—First and second degree burns are very painful. Third degree burns are less painful because of destruction of the full thickness of the skin. Morphine is effective in controlling this pain and should be given intravenously when possible to avoid the danger of delayed absorption in the patient suffering from shock. Morphine syrettes containing suitable dosages of the drug would greatly facilitate administration. The routine use of anesthetic ointments as a means of pain relief would be too time consuming and could be harmful in the case of second and third degree burns because of contamination with uncleanly application.

Prevention of Infection.—Burn patients should be handled in as cleanly a manner as possible. As in the case of most wounds the contamination incurred at the time of injury is less than that consequent to the care of the wound, particularly that derived from the fingers and respiratory passages of attending personnel.

Patients should be moved as soon as possible to suitable installations where adequate dressings may be applied. An occlusive dressing prevents further contamination and alleviates pain. Cleansing of the burned area will probably be impossible with the large number of patients. More harm than good will result in such attempts at debridement unless it can be done carefully under suitable conditions. General anesthesia for the dressing should be avoided if possible, reliance being placed upon opiates and sedatives for the control of pain. Strips of vaseline gauze are most commonly used as the intimate dressing but some prefer dry gauze. These are then covered by mechanics' waste or cotton and the dressing secured in place by elastic roller bandages. Hands should be dressed in a position of function, and elbows and knees in a position of extension. Great quantities of dressing material must be made available. A prefabricated burn dressing has been described by Allen.[1]

Recent revival of the "exposure" treatment of burns[4,13] has been given impetus by the threat of atomic attack. In the event of disaster such form of treatment may well be forced upon the medical services by the lack of time and materials to apply suitable dressings. Moreover, it avoids certain disadvantages of the closed treatment. Mobility of joints would be less impaired and more quickly restored. The danger of impaired pulmonary ventilation from pressure dressings about the chest and abdomen and the necessity for time-consuming traumatic sessions for changing dressings under anesthesia are eliminated. The patient swathed in bandages cannot readily dissipate his body heat. The adverse effect on shock[12] and the undesirable increased metabolism[4] from increased body temperature resulting from interference with heat dissipation has long been recognized. The warm, moist, anaerobic interior of a burn dressing must certainly be an excellent incubator for bacterial growth. This type of treatment is undergoing investigation in many burn centers. Disadvantages observed to date are: (1) pain is not relieved as with an occlusive dressing, (2) absolute cleanliness is necessary to prevent bacterial contamination, and (3) the method has its greatest applicability when the extent of the burn is less than 30 per cent of body surface.[13]

Antibiotics are routinely used in burned patients to aid in the control of infection. Appropriate measures for immunization should be taken whenever there is question of contamination with clostridial organisms. Pre-disaster mass active immunization with tetanus toxoid would be of great value in this regard.

Prevention and Treatment of Shock.—The great majority of patients with 10 to 20 per cent burns need no replacement therapy other than oral electrolyte solution. They should be encouraged to drink all they can tolerate and as much as 10 liters has been administered by mouth during a twenty-four-hour period.[16]

When more than 20 per cent of the body surface is burned, shock is usually inevitable unless adequate prophylaxis is possible. Shock results from a decrease in the blood volume produced by loss of extracellular fluid into the burned area and from the burned surface and by loss of red blood cells. The red blood cell mass is reduced by hemolysis, capillary dilatation, blood stasis and sludging, and petechial hemorrhages in the area of the injury. These factors, together may produce a 50 per cent drop in the circulating red blood cell mass in a few hours. A 20 to 30 per cent burn may require as much as 2 liters of blood during the first twenty-

*Contains 3 to 4 gm. sodium chloride and 1.5 to 2.0 gm. of sodium citrate, sodium lactate or sodium bicarbonate.

four-hour period together with the oral electrolyte solution.[4,7,10] When a patient is in shock electrolyte solutions will not be absorbed from the gastrointestinal tract and Hartman's** solution should be given intravenously, the amount administered being based upon the patient's clinical response.[4,8,16] A urinary flow of 50 cc. per hour suggests that renal function is adequate and replacement therapy satisfactory.[5]

Burns of 30 per cent of the body surface or greater require a minimum of whole blood in an amount equal to 4 per cent of the body weight together with salt solutions equal to 8 to 15 per cent of the body weight during the first twenty-four hours.[8] The administration of blood substitutes, such as acacia and gelatin, has been recommended when blood or plasma is not available. In the event of a disaster the use of such substances may be necessary.

The drinking of fluids other than electrolyte solutions should be restricted during the first forty-eight hours because of the danger of water intoxication.[4,7] When electrolyte solutions are being administered intravenously, the careful administration of limited amounts of 5 per cent glucose in water is necessary to provide water for insensible loss and urinary excretion. After forty-eight hours resorption of the edema fluid begins and salt solutions should be discontinued and the patient permitted to drink water.

Definitive Treatment.—After final evacuation of burned patients and adequate help and supplies have become available, optimum definitive treatment may be instituted. Efforts must be directed towards preventing anemia by repeated transfusions. Malnutrition, hypoproteinemia and the loss of sodium, potassium and calcium salts from the granulating surfaces should be combatted by the oral administration of a diet containing over 200 grams of protein a day reinforced by enough carbohydrate and fat to provide 1000 calories in excess of normal requirements. If the patient is unable to eat, feedings by gastric tube should be instituted. The use of parenteral preparations for maintaining the patient's nutrition is so inefficient as to preclude their use except as an adjunct to vigorous efforts at oral feeding. Multiple vitamin supplements, particularly of C (1.0 gm. per day) and B complex, should be provided.

**Lactate Ringer's—contains 2.5 gm. sodium lactate, 6 gm. NaCl, 0.3 gm. KCl and 0.2 gm. $CaCl_2$ per 1000 cc. of water.

Closure of the Wound.—Attention should be directed early toward closure of wounds by skin grafting. Before grafting is attempted, anemia and malnutrition should be corrected insofar as possible. Infected granulating surfaces are treated by saline solution, Dakin's solution or antibiotic solution. Surgical debridement of the wounds may be performed and immediate or delayed skin grafting carried out, depending upon the condition of the wounds. Sheets of split thickness skin grafts should be used to cover the burned areas. These may be applied either to healthy granulation tissue or the burn wound may be excised and the graft applied to normal tissue. Excision of the burn wound is preferable since the residual scar is greater when grafts are applied to granulating surfaces.

Summary

The management of patients burned in an atomic explosion poses a large problem. Mass casualties must be treated by mass production methods.

Burns resulting from an atomic explosion differ little from burns produced by flame. Consideration must be given to five interrelated phases of treatment: (1) the control of pain, (2) reduction of infection by cleanly care, application of dressings and administration of antibiotics, (3) the prevention of shock by the early oral administration of hypotonic saline solution followed by the administration of whole blood, (4) the treatment of anemia and malnutrition by oral feedings and whole blood transfusions, (5) early closure of the wound by skin grafting.

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Psychiatric Aspects of Civilian Defense

By Raymond W. Waggoner, M.D., Sc.D.
and
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INDIVIDUAL and group reaction to peril is so variable and dependent upon so many factors that these factors must be considered in any program of civilian defense. The development of the A-bomb, the possibility of the use of an H-bomb, the question of newer types of Chemical and of Bacteriological warfare are serious threats to the civilian population in and near centers of war production potential. Public awareness of the tremendous destructive effects of atomic explosions, and of the possible radiological and heat effects, is such as to make likely severe and endangering emotional reaction unless through further study and planning these effects can be prevented by the use of suitable measures. Abrupt consciousness of peril as in a bombing action, unless promptly neutralized, can lead to severe and dangerous disruptive behavior.

It is essential that physicians as well as all others whose duty it is to carry out first aid procedures in time of disaster be given a clear understanding of the emotional factors in emergency situations which often constitute a greater problem than physical injury or disease. The majority of patients requiring psychological first aid will be suffering from physical injuries. A certain proportion will be suffering from shock without physical injury, and these will show variable degrees of nervous and emotional instability. In emotional as in physical first aid, the physician must avoid errors which result from limiting his attention only to obvious injuries, and from failure to examine the patient carefully. The physician who is oriented in psychiatry and psychosomatic medicine will not require new therapeutic methods in dealing with wartime casualties. He may, however, be called upon to assist in the preparation and training of auxiliary personnel for wartime emergency work.

Since there is no experience in our culture with public reaction to an atomic explosion, it is necessary to plan on the basis of the reactions reported from Hiroshima and Nagasaki, and to utilize the type of responses seen in association with other types of disaster. Panic-producing accidents like those of Texas City and the South Amboy explosion and the reaction to bombing as evidenced during World War II are the most significant examples available. From these occurrences means of immunizing the public against dangerous reaction to peril should be possible.

During the last war, it became apparent that the civilian population of any country involved in war was exposed to almost as much danger as its military personnel. For this reason, it seems logical to assume that the civilian population should receive some of the kind of indoctrination which is given to military personnel. This is particularly true in urban centers which are apt to be exposed to raids. Urban centers are the source of the war material which maintains the military machine, and unless the civilian population involved can maintain its productive capacity efficiently, there is no possibility of military success.

In order to plan intelligently, it becomes necessary to have clearly in mind factors which have to do with disruptive behavior. Certain of these factors are a function of the psychological reaction pattern of the individual, certain have to do with activities of what has been called the fifth column. Imitative behavior and suggestibility are very important, since all persons are more or less suggestible. Groups tend to follow suggestions which may be placed before them, particularly if the suggestion is dramatic and involves the unconscious anxieties of at least some of the group. This may lead to a degree of panic in which individuals fail to exercise critical judgment, with reactions occurring at a lower intellectual level. Since imitation is in part manifested at the unconscious level, individuals tend to copy the reaction of others and such behavior spreads like wildfire. The Coconut Grove disaster exemplifies this type of reaction.

A particularly significant source of disruptive behavior is present in the sometimes fanciful description of new weapons in the hands of the enemy. This is a factor in psychological warfare

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Free use has been made of the material collected and written by the "Committee on Co-operation with Government Agencies" of the Group for the Advancement of Psychiatry, and the National Council for Mental Hygiene (London). The material has been considered and approved by the Mental Hygiene Committee of the Michigan State Medical Society.

which was so well developed during the last war. The constant announcement of new techniques which are extravagantly destructive, tends to keep civilian population at fever heat of anxiety, as for example the atomic and hydrogen bomb, and the threats of chemical and bacteriological warfare. The presumption of some mysterious and fantastically successful weapon leads to reactions of fear. This is increased by the lack of public information concerning such weapons.

The development of rumors by either actual fifth columnists or by what might be described as unconscious fifth columnists tends to activate the factors described above. Rumor may be started intentionally by those who want to stimulate disruptive behavior. Maladjusted individuals may have a compulsive need to spread misinformation of an alarming nature. On the other hand, many loyal Americans allow themselves to express their anxiety in statements not based on fact. This serves to start rumors which after a few repetitions may become very distorted, and very harmful to the civilian population.

The prevention of disruptive group behavior is to a large extent dependent upon the psychological strength of the population. Measures designed to increase the mental health of the population are imperative. In line with the comments made above, it becomes necessary to educate the public to the actual danger in terms of the kind of warfare possible and the degree of destruction that may be expected. It would seem of value to publish informative articles in newspapers and to have a series of radio broadcasts over stations which have large audiences based on such educational measures. Leadership which will inspire public confidence should be established in each community, particularly those in or near urban centers. Leaders should take an active part in the educational and informational programs to be developed in various parts of the country. It would be of great value if the authenticity of this material was fairly well established from a central source. In the military services, disaster films and those which show the destruction of life and property have been found to help immunize the service man against what he must face in actual combat. Similar films could be adapted for public consumption. A very important part of the civil defense planning should be the establishment of intensive training programs for the peace officers in each community and the development of plans for the evacuation of the area should disaster occur. Furthermore, proper steps might be developed which would lead to the control of the dispersal of misinformation and of dangerous unauthorized broadcasts.

It is impossible to estimate with any degree of accuracy the number of psychiatric casualties to be expected. During World War II, plans were made for the care of numerous psychiatric disabilities in England, and yet when various cities in England were subjected to intensive bombing, to the great surprise of many, psychiatric casualties were actually relatively few. Nevertheless, there must be an awareness of the possibilities. An individual can react to threats of danger by fear with controlled and reasonable behavior; or his fear may be manifested by the occurrence of disabling physical symptoms, some degree of which we have all experienced at times of danger; by complete incapacity as a result of his emotional reaction; or the individual can withdraw completely from reality and become psychotic. By far the greatest number of psychiatric casualties will be some type of an immaturity reaction. Mass reaction, on the other hand, which may be actually set off by individual behavior, can be expressed in panic, in apathy, and complete demoralization. Acute, temporary panic states, dependency reactions, and hysterical outbursts are examples of reaction patterns to be expected, the treatment of which will be discussed later. Tyhurst has described the various phases of reaction to mass disaster as follows:

1. The period of impact.
This is duration of the initial stress.
2. The period of recoil.
This follows immediately after the impact period and may last from several hours to a day or more. Other stresses occurring during this period may continue to cause difficulty, as for example the presence of severe physical injury.
3. The post-traumatic period.
It is during this time that full awareness of the disaster develops and the individual is faced with significant alterations of his environment. It is during this time that there may be severe emotional outbursts.

A group in panic is thoroughly disorganized and frequently without leadership, with individuals in the group acting oftentimes at cross purposes. Strong leadership evolving from some individual in the group, or from someone in the community, can integrate these individuals and assist in bringing the panic under control. This is essentially the function of individuals already prepared for this type of activity in the pre-disaster planning.

Civilian defense personnel frequently turn to the physician for guidance and advice in the understanding of nervous and emotional disorders, and for specific instruction in first aid treatment of neuropsychiatric casualties. The "Red Cross First Aid Manual" used in the conventional training courses treats this subject only briefly and inadequately, and does not do justice to the importance it assumes in maintaining individual morale and in the prevention of panic.

The emergency treatment of psychiatric casualties is most effectively undertaken through an understanding of the various normal and abnormal manifestations of fear and anxiety. Fear is defined as the emotion which accompanies awareness of danger, and when appropriate it is a constructive force which mobilizes the individual's energy for defense and protection. But when it is pathologic, fear may have devastating effects on the individual. Physical factors such as fatigue, lack of sleep, and nutritional deficiencies play a contributory part in both predisposing to and in aggravating fear. Anticipation of unknown danger from such threats as the atomic bomb or bacteriologic warfare may in some individuals be more productive of fear than actual danger itself. As Crile stated, the patient who is overcome by excessive fear is like a car with the clutch out and the motor racing; the whole mechanism trembles, much energy is consumed, but no headway is made.

Before proper treatment can be applied it is necessary to recognize and differentiate conditions which are primarily, if not entirely, due to mental and emotional reactions. The commonest symptoms resulting from fear and heightened emotional tension include:

1. "Hysterical" states in which the patient shrieks, laughs and cries, trembles violently, throws himself about and is difficult to control.
2. Aphonia, amblyopia, or paresis of extremities.
3. Sudden unconsciousness, or trance-like states, fainting.
4. Mental confusion with restlessness.
5. Complete or partial amnesia.
6. Dramatic complaints with fixation on such symptoms as palpitation, dyspnea, weakness, and apparent exhaustion without physical explanation.
7. In extreme cases, a state of "shock," in which the patient becomes cold, pale and apprehensive, accompanied in some instances by weak pulse, hypotension, shallow breathing, and danger of collapse and heart failure.

The first aid treatment for all these conditions is of a somewhat similar character and is fairly simple provided some advance preparation is made. Physicians and civil defense personnel should be aware of the effect of their own personality, and of the influence which an air of calm assurance has on these patients. Excitable people should always be spoken to in a calm, even tone of voice, and with an air of authority. Loss of temper, shouting, scolding, or showing anxiety only increase the patient's symptoms and spread insecurity to others. The individual in control should show by his words and deeds that fear reactions will respond to treatment, and that his concern is for the patient's comfort, not his life. Patients who show excessive emotional reaction should be dealt with firmly but kindly, and treated like a frightened child. This approach is well expressed in the words, "In quietness and confidence shall be your strength."

A patient who is excitable should be moved as soon as possible away from others who have visible physical injuries. Then he should be given an opportunity to talk out his fears and anxieties in the presence of a sympathetic listener. It is always worthwhile to spend a few extra minutes to establish such a contact. The patient should not be given an opportunity to talk to other patients or to repeat his preoccupations to everyone who approaches him. Punitive treatment by those who do not understand and who become impatient with the patient's overdramatized suffering and seeming desire for attention only serves to aggravate the symptoms.

Excitable and overactive patients tend to resist any attempt at physical restraint. Grasping their wrists or holding them down will usually only increase their struggles. It is far better to take their hand in a strong friendly clasp which invites trust and offers security. When the patient is lying down he is less likely to resent the restraining effect of a blanket well tucked in; one person sitting on each side may keep it in position if necessary. Interruption of the anxiety reaction is often best handled by heavy sedation, especially by the use of barbiturates.

It is a scientific axiom that the best antidote for fear is some kind of constructive action. The mere fact of being occupied has a stabilizing effect on many people, including those manifesting milder forms of nervous excitement. Such patients can be assigned to some small job not involving great re-

sponsibility but demanding attention. Emphasis should be placed on well-planned and well-directed, not meaningless or useless, activity. Participant activity which allows the individual to share his efforts with others striving toward a common goal is one of the basic determinants of high morale.

The effectiveness of specific techniques such as reassurance, suggestion, and re-education, depend first of all on the personality of the therapist, his understanding of human nature, and his skill in applying experience in interpersonal relations to each individual case. After the emergency situation has been brought under control, the physician and his psychologically trained aides should provide opportunity for the patient to unburden himself of his fears, ventilate his preoccupations and anxieties, and build up confidence and rapport on which his acceptance of further out-patient or hospital therapy must be based.

It is to be emphasized that war as such does not cause mental disorders, but rather brings to light certain abnormal mental conditions already present in predisposed individuals. Patients who developed neuroses in the last war were those who in childhood had exhibited morbid fears, insecurity, and disturbed family relationships. Breakdown resulted not so much from immediate danger of bodily harm as from disruption of the particular pattern of life established by these susceptible individuals.

When psychologic first aid and appropriate aftercare fail to bring about a restoration of emotional balance, psychiatric referral will be indicated. Referral of such cases requires skillful handling and is in itself a form of therapy for the patient, requiring both directive and nondirective counseling techniques. As in handling emergency problems, a good approach is to consider methods used to induce a reluctant, resistant, or bewildered child to carry out a necessary task. Referral to a psychiatrist should be carried out in the same way as referral to a dentist or surgeon. If there is initial resistance, the referral must be made with the aid of reassurance, and suggestions bearing on the desired outcome of treatment. It is obvious that if an emergency situation is capably handled, rapport and co-operation in subsequent contacts with the patient are greatly facilitated. Physicians and their civilian defense aides must constantly be alert to the effect of their initial contact with neuropsychiatric casualties.

Summary

1. Active medical participation and leadership in community defense planning is essential.

2. The physician has an important responsibility in education and morale building in his community.

3. Physician awareness of psychiatric danger potentials in any disaster is necessary.

4. Early treatment of milder psychiatric cases with reassurance and support will usually suffice.

5. Referral of patients with chronic and severe emotional disturbance to psychiatric treatment centers is necessary, but comprehension of adequate referral methods is equally important.

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MSMS

When a physician suspects bone cancer he must be able to differentiate between normal, benign and malignant conditions. The ten radiologic signs which indicate bone cancer are: (1) a localized, ill-defined, irregular area of increased density in the bone; (2) palisade needle-like spicules at right angles to the periosteal border of the bone; (3) periosteal accretions of new bone, or cuffs on either side of the primary lesion; (4) periosteal, irregular, fibre-like spicules radiating from a localized area of damaged cortex; (5) localized expansion of bone which is denser than the adjacent normal bone; (6) localized osteolysis of bone, either cortical or endosteal; (7) localized, irregular disintegration of a previous bone lesion; (8) localized, irregular, cyst-like extensions and expansions of bone; (9) metastases in other bones or lungs; and (10) a large expanding soft tissue tumor associated with normal underlying bone.

The Doctor's Responsibility in Atomic Diseases

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PHYSICIANS ARE concerned with two principal uses of atomic energy. The peacetime use of atomic energy is not new, but its application in new and novel ways is constantly affecting the lives of more and more individuals.

Peacetime Use of Ionization Radiations

The poisoning of instrument radium dial painters called the attention of physicians, physicists and engineers to the dangers of the accumulation of radium in the body, primarily the bones. This danger of the ingestion of radioactive materials was later confirmed by observations on persons who drank "curative" waters which contained radium.

All physicians are familiar with the dangers of overexposure or continued exposure of the same parts of the body to repeated small doses of x-ray. The ulcerating and cancerous hands of our early x-ray investigators are constant reminders of the biological effects of repeated radiation.

However, it was not until nuclear physicists began their extensive research as a war effort that physicians obtained more information of the biological effects of ionizing radiation. Now the industrial hygienist, the physician, the physicist and the sanitary engineer are concerned with the use of radioactive isotopes in industry. The industrial hygienist is attempting to control exposure of workers to ionization radiations. The physicist is carefully studying the nature and the use of the radioactive isotopes and measuring the intensity of ionization radiations throughout various industrial processes. The physicist is developing monitoring devices that measure the amount of exposure to ionization radiations. The doctor makes careful examinations of workers and provides treatment of those who may have exceeded the 0.1 r per day or 0.3 r per week, which are the accepted tolerance levels for those exposed continuously five working days a week. The sanitary engineer is becoming concerned with the proper disposal of radioactive waste so as to safeguard the public.

Moreover, the use of radioactive isotopes in many universities and medical schools and hospitals in treatment and research is becoming greater. The work of the Atomic Energy Commission in the development of atomic energy for peacetime use as well as for war has been partially described in some declassified releases. Naturally, there must be a considerable amount of restricted information relative to atomic energy so classified because of national defense needs.

However, physicians are being called upon to take a much more responsible role because of the possible use of atomic energy by an enemy against our civilian population.

Atomic Energy in War

Much has been written about the possible use of an atomic bomb against American cities. Speculation has ranged from the most fantastic descriptions to more plausible expectations based on a realistic evaluation of fact, some shrewd guesses and an analysis of world-wide events.

It may be assumed that unless some unforeseen international agreement outlaws the use of the atomic bomb, the next war will be introduced by the bombing of American cities with some type of atom bombs. While it is unlikely that atom bombs will drop on Boston, New York, Philadelphia, Los Angeles, Detroit, or other key metropolitan areas within the immediate future—that is, this year—it must be assumed that when the enemy is ready to start total war, that is when he has produced what he believes is sufficient number of atom bombs, he may attack America by simultaneous mass bombing of key cities. It is possible that an enemy may have sufficient bombs within three to five years.

Atom bombing may occur as (1) an air burst at about a 2,000 foot altitude, probably by means of a radio-guided airplane, or guided missiles; (2) a surface or near surface burst over water or land, such as a selected cellar or the top floor of a skyscraper; (3) a sub-water burst.

Of these the air burst is most likely, as it would have the greatest anti-personnel effect and at the same time be extremely effective against a material target. It is, therefore, wise to review the effects of atom bombing in Japan.

Presented on September 21, 1950, at the Eighty-fifth Annual Session and Postgraduate Conference of the Michigan State Medical Society, Detroit, Michigan.

An Atomic Bomb Burst in Japan

The morning of August 6, 1945, began clear and bright in Hiroshima. At 7:00 a.m. an air raid alarm was sounded, but at 8:00 a.m. an all-clear was sounded after the planes had disappeared without bombing. Many people were at breakfast. Only some of the laborers were at work, but most of the downtown business people had not gone to work. Consequently, a large percentage of the population was at home and relatively few were in the more strongly constructed business buildings.

At about 8:15 a.m. there was a blinding flash. Some described it as brighter than the sun, others likened it to a magnesium flash. Following the flash there was a blast of heat and wind. The large majority of people within 3,000 feet of ground zero were killed immediately. Within a radius of about 7,000 feet almost every Japanese house collapsed. Beyond this range and up to 15,000 to 20,000 feet many of them collapsed and others received serious structural damage. Persons in the open were burned on exposed surfaces, and within 3,000 to 5,000 feet many were burned to death while others received severe burns through their clothes. In many instances clothing burst into spontaneous flame and had to be beaten out. Thousands of people were pinned beneath collapsed buildings or injured by flying debris. Flying glass particularly produced many non-lethal injuries at greater distances from the center of the blast.

Shortly after the blast, secondary fires began to spring up over the city. Those who were able made a mass exodus from the city into the outlying hills. There was no organized activity. The people appeared stunned by the catastrophe and rushed about as jungle animals suddenly released from a cage. Some few apparently attempted to help others from the wreckage, particularly members of their family or friends. Others assisted those who were unable to walk alone. However, many of the injured were left trapped beneath collapsed buildings as people fled by them in the streets. Pandemonium reigned as the uninjured and slightly injured fled the city in fearful panic. Teams which had been previously organized to render first aid failed to form and function. Those closer to ground zero were largely demobilized due to injuries and death. However, there were physically intact teams on the outskirts of the city which did not function. Panic drove these people from the city just as it did the injured who could walk or be helped along. Much of the city's fire-fighting equipment was damaged beyond use so that soon the conflagrations were beyond control.

Types of Injuries from Atomic Bombing

1. Secondary injuries accounted for a large number of the immediate deaths, especially those due to falling debris. Blast effects do not appear to have been as prominent near the center as in high-explosive blasts. This is partly accounted for by the fact that the bomb was an aerial burst and partly by the long duration of positive phase of blast. There were few reports of ruptured eardrums due to the blast. Secondary injuries occurred up to 15,000 to 16,000 feet from the center of the blast but beyond 7,000 feet they were usually of minor nature and were due largely to flying glass.

2. Flash burns indicate that a very high temperature was reached. Survivors report feeling a heat wave at 24,000 feet, but skin burns probably did not occur beyond 15,000 feet. People in the open directly under the bomb were so severely burned that the skin was charred dark brown or black. The exposed surfaces of the skin were burned most severely but persons were burned through clothing. Japanese houses and even clothing offered some protection against flash burns within 3,000 feet of the center. Flash burns appeared to heal promptly and showed no unusual clinical features.

3. Radiation effects of the bombs have been confined to those who were in the area at the time of the bomb burst. The clinical picture has been that expected from large doses of gamma rays. Many patients experienced nausea and vomiting within twenty-four to forty-eight hours but then felt well for one to three weeks thereafter. They then developed fever and showed the typical picture of neutropenia and anemia. The severe cases usually died within a few days. Many thousands died of these effects in late August and early September. Few died who survived until October 1. Most cases of radiation sickness occurred within 5,000 feet of ground zero, and practically none who survived other injuries escaped the effects of radiation within 3,000 feet. The only structures of importance as shielding factors were concrete buildings. The degree of protection against radiation depended upon the distance from ground zero and the thickness of the concrete. Earth was also ef-

ATOMIC BOMBING OF AN AMERICAN METROPOLITAN AREA OF OVER 1,000,000

Air Bursts of three Super Atomic Bombs Having a 160 per cent Effective Area Destruction as Compared to the Hiroshima Type Bomb.

Week After Burst	Number Requiring Hospitalization	Ambulatory Casualties	Deaths
There would be about 96,000 killed outright			
1st	192,000	96,000	96,000
2nd	168,000	57,600-72,000	48,000
3rd	144,000	48,000	24,000
4th	120,000	38,400	14,400
5th	96,000	38,400	4,800-24,000
6th	48,000	48,000	2,400

fective in protecting a small number of persons in air-raid shelters and behind hills in Nagasaki. Earth has less shielding value than concrete and several times the thickness was required to afford comparable protection. Clothing and Japanese (wooden) houses did not appear to have any shielding value. Sperm counts on survivors have revealed oligospermia and aspermia in many persons who were within 5,000 feet of ground zero. Such effects may have extended further. Abortions and miscarriages were the rule in pregnant women within 3,000 feet, and such effects may have extended to greater distances.

4. A review of all the evidence indicates that there were about 80,000 deaths in Hiroshima and about 45,000 in Nagasaki as a result of the atomic bombs. The injured probably numbered 80,000 to 100,000 in Hiroshima and 50,000 to 60,000 in Nagasaki.

Atom Bombing of An American Metropolitan Area

If an American metropolitan area of over a million population were to be attacked by an atom bomb such as was used over Hiroshima on August 6, 1945, and over Nagasaki on August 9, 1945, there would be about 100,000 casualties. However, there have been many improvements in the atom bomb, and we must be prepared for multiple bombing of metropolitan areas by more effective atom bombs.

Eighty-five per cent of these 480,000 casualties would be due to blast and thermal injuries, and only about 15 per cent to ionization radiations. The traumatic injuries due to blast would involve 70 per cent. Trauma would be: 11 per cent fractures, 37 per cent lacerations due primarily to small particles of flying glass, 52 per cent contusions.

About 65 to 85 per cent of the casualties would suffer from burns; 95 per cent of these would be flash burns from the radiant energy emitted by the bomb, and 5 per cent would have flame burns due to secondary fires, such as burning clothing and buildings.

The geographic extent of each super atomic bomb burst over which these casualties would occur is:

1. Radiation injury.....1¼ mile—lethal ¼ mile
2. Thermal injury.....4+ mile—lethal 1 mile
3. Blast injury.....5+ mile—lethal 1¼ mile

Persons caught in the open and just beyond a one-half mile of zero point of the air burst would be killed almost instantaneously or die within a few hours from blast, heat and radiation effects. Within a zone having a radius of ½ mile and 1¼ mile from the center, some persons would die instantly, while a majority would receive varying degrees of injury. Outside a radius of 1¼ miles but within a radius of 2½ miles, persons would suffer injuries from flash burns and indirect blast effects but would be free of major radiation hazards, except in a possible fall-out area. Outside a radius of 2½ miles but inside a radius of five miles, persons would be injured by flying fragments of glass and other debris and suffer superficial wounds, but would be free of both flash burns and radiation injuries.

The bombing would most likely be timed for the day when most people are at work, in the congested downtown areas. Therefore, the best defense against atom bombing is warning in sufficient time to enable people either to seek specially prepared bomb shelters or to evacuate the area. Naturally the best place to be at the time of an atom bombing is away. Distance is the cheapest and best means of defense. Hence, every effort should be made to promote urban decentralization of government, hospitals and manufacturing and commercial institutions.

An Atom Bomb Burst Over a Metropolitan Area

If a bomb were dropped over a metropolitan area, it would produce first a dazzling flash which blinds the people and at the same time sears them with its multi-million degree heat. Within a thousandth of a second the bomb has changed from inert matter to a small sphere of white-hot, highly compressed gas. From this a ball of fire forms over the epicenter, usually an important war industry or transportation center, and immediately

expands into a varicolored sphere of flame. This grows ever larger and rushes downward towards the earth as well as in other directions. The ball of fire vanishes quickly, giving rise to a huge pinkish-white atomic cloud which is reflected from the still standing roofs. Quickly the cloud mushrooms over the city obscuring the sun.

Directly under the blast the evanescent flash of heat has seared pedestrians on the streets and in parks into unidentifiable charred, grotesque forms. Those fortunate enough to have been shielded by buildings from the heat are momentarily conscious of a crushing blast wave. The blast wind follows the primary blast and demolishes the buildings still standing. The air is black with dust from pulverized buildings. Soon the crashing of buildings is succeeded by a quieter but ominous roar of secondary fires.

As the holocaust spreads, there is a reversal of the blast wave. Winds rush inward as the fireball mushrooms upward. The fire-fighting equipment, if not destroyed, is useless because of the blinding heat and debris-choked streets. The water supply as well as communications are disrupted. Lights are out, the elevators and rapid transit system have stopped running, and fire spreads rapidly as the prevailing wind carries the residual radioactive ingredients and fission particles in the direction of the prevailing wind.

In the average metropolitan area the multiple bombing of industrial and transportation centers would immediately dislocate most of the large hospitals within the effective radius of the atomic bombs and not only most of the hospital facilities but also other large buildings which could be used as emergency hospitals. Within this area there are also likely to be the local utility controls such as gas storage tanks and electric power controls, the telephone, telegraph and other communications.

We must assume that the first bombs will be burst as a complete surprise. The first knowledge will be an intense flash of light with the spectrum of the sun. This will last from one to two minutes. Within a fraction of a second there will be the radiant heat wave, lasting but an instant in which the flash burns will occur. Thereupon will follow the ionization radiations. Since the buildings will still be standing, many persons will be shielded against these hazards. Lastly comes the blast with the demolition of buildings and the concurrent killing and injuring of thousands. Multiple types of injury will occur.

A cloud of fission products, heat, smoke, will mushroom upward and gradually float with the prevailing winds. There is some danger of a fall-out of radioactive particles and of spreading fires. The radiation injury is due to the single exposure during the fraction of a second of the radiation from the burst. In this type of air burst there is not apt to be any residual radioactive deposit over the ground.

Civil Defense Medical Department

The physician, in such a catastrophe, will have new problems to meet. The first, of course, will be the care of the injured. With the likelihood of almost one-half a million persons being either seriously injured or killed outright in a metropolitan area the remaining physicians will soon be overwhelmed. Obviously, with most of the hospitals destroyed, including the stores of medical supplies and equipment, the metropolitan area must depend upon regional assistance. Because of the suddenness of such catastrophic events it is important that the civil defense plan be developed early and the organization trained so as to go into immediate operation. It is estimated that if proper civil defense procedures are followed, 50 per cent of the casualties can be prevented. Thus, in the case of a Hiroshima type bomb burst the casualties in an American city could be reduced to about 50,000. And, in the case of a three superatom bomb burst the casualties can be reduced from almost one-half million to less than 250,000. Moreover, with the possibility of multiple bombings of several cities simultaneously each region must be as reasonably self-sufficient as possible except for some supplies such as blood, antibiotics, food and material for repairs. The region must be prepared to take care of its own emergencies so as not to disrupt the war efforts in the other parts of the country. The Medical Defense Department of Civil Defense must, therefore, be organized to provide:

1. *Determination of Radio activity.*—Determine the area which must be declared a no-man's land due to residual radio activity.

2. *Care of the Injured, Disposal of the Dead.*—Develop an organization for the identification and collection of the injured, first-aid treatment in the field, transporting to receiving stations, then to emergency hospitals and finally, to base hospitals located at a greater distance from the metropolitan area.

Because of the large number of injured there will be a lack of sufficient blood and blood substitutes and antibiotics as well as other therapeutic agents to treat all persons. Each region must, therefore, det rmine how it will select those persons who must be given the treatment which is most likely to insure survival. Selection of persons to be treated must be made upon (1) the exposure to radioactivity which can be determined only upon careful determination of the person's location during the period of the bomb burst or by the use of personnel dosimeter, (2) other injuries sustained by the individuals, (3) the individual's age, and (4) his importance to the community.

Persons who have received lethal doses of ionizing radiations or who have other fatal injuries should receive minimum treatment but should be made as reasonably comfortable as possible. On the other hand, children and young adults who have received sub-lethal doses should be given the maximum treatment in keeping with available personnel and supplies.

The organization of emergency hospitals in school buildings, dormitories, hotels and other large buildings in the suburbs and resort areas should be carried out under the Civil Defense Medical Department. Each such unit should have an organized staff and have all details arranged so that in time of emergency the necessary equipment and supplies will be ready for immediate use. Complicated cases requiring extensive surgery such as brain injuries or compound fractures should be moved to regional or base hospitals where special services will be available. It will be necessary to train auxiliary personnel to give first-aid treatment for burns and lacerations due to glass either at the site where the person is found or as soon as it is reasonable to give such treatment at the station.

Not only must the medical profession agree upon the standard treatments for burns and other injuries but must agree to stockpiling uniform supplies in hospitals and warehouses far removed from primary target areas. The medical profession will also have to assume the responsibility of training "medical technicians" who will form special bleeding teams not only in the suburban areas but in neighboring regions. These will immediately bleed donors into specially prepared containers in order to supplement the supply in blood banks and the American National Red Cross. Now reserves of plasma and albumin should be laid aside in safe areas for use during disasters.

3. *Medical Care of Displaced Persons.*—The responsibility of the physician in time of atomic catastrophe will be to supply the medical care for displaced persons. In any bombing with the vast destruction of the metropolitan area thousands of persons will have to move to temporary quarters not only in suburban areas but neighboring cities and towns and also summer homes and resorts. This means there will be great dislocation of private practices in these areas and facilities must be made available to supply the necessary medical and hospital care to these displaced persons.

4. *Planning of Evacuation of Hospitals on Advance Warning.*—If the American people are fortunate enough to receive a notice in advance, then there is the necessity of evacuating not only the women and children but also the patients from hospitals. This means the development of a plan whereby each hospital can evacuate to one or more places in the region. The medical and hospital authorities, having formulated a plan in advance for this evacuation, will determine the type of patient who will be moved or returned to his home and the number of personnel who will be assigned to the new quarters. Provision must be made not only for the equipment and supplies for the patients' care but the housing of the personnel and the feeding and clothing of both patients and personnel. Since hospitals will be expected to develop cadres for the staffing and operating of the emergency and receiving hospitals for the injured, the staff which is moved to the new temporary quarters must consist only of key personnel who would call upon voluntary and hired help from the area to which it is moved. Under these circumstances all voluntary operations and hospitalization shall have to be curtailed if not eliminated and only emergency surgery and hospitalization permitted.

5. *Community Health Service.*—The fifth responsibility of the physician would be to provide adequate community medical services in the presence of increased hazards to the public. Double safeguards must be taken against enteric infections, particularly if human waste is not adequately cared for since under these conditions flies and vermin can be a serious carrier of many types of enteric diseases. With crowded housing and the use of emergency housing in public buildings and the overcrowding of schools, there will be a great opportunity for the spread of respiratory diseases,

including tuberculosis, the common cold, pneumonia, meningitis, and influenza. The common childhood diseases are likely to appear in greater number. Smallpox may become a danger. Under these conditions there must be complete reporting of communicable diseases.

Conclusion

All in all, the physician is faced with new responsibilities in the preparation of our country for atomic casualties. He will have to play an intricate part of the civil defense organization. Every physician, nurse, and member of the healing aids will be subject to call in such an emergency. He will be expected to devote his time to the care of the injured and to assign the responsibility for looking after his family to other responsible persons in his household. In anticipation of disaster he will take part in the training of auxiliary personnel in first aid, home nursing, nurses aids, canteen workers, development of an ambulance corps, the setting up of emergency and temporary hospitals, the preparation of temporary evacuation sites for existing hospitals and in locating housing for displaced populations. During the actual emergency he can expect to be entirely divorced from his household and to be expected to be called to duty under the various civil defense rules and regulations and to take part and to assume the part to which he was assigned in the civil defense organization.

Some physicians may be so engaged for weeks and others for months. Rebuilding of a metropolitan area following strifing by atomic bombs will not take place for months and years to come. The physician, therefore, has not only an important role to play in the planning for civil defense but a very important role during the actual catastrophe and thereafter. His readiness and his willingness to serve under these trying circumstances will be the measure by which the American people will determine his status in the community.

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MSMS

BLOOD PROCUREMENT IN TIME OF DISASTER

(Continued from Page 266)

should be outlined, pointing out that blood and plasma will prove highly effective in the conservation of life and health and for the reduction of morbidity. The educational program should be so developed that instead of creating hysteria, it will be accepted as an encouragement to participate in the indicated defense preparations.

Continued reminders at monthly intervals should be the rule for the present, instead of conducting intensive drives and then lapsing into a state of inactivity. Sustained appeals should be continued over long periods, for many years if necessary, until the prospects of war and atomic bombing are eliminated. If war becomes a reality, then the more intensive measures will be indicated.

The Mass Blood Typing Program of Jackson, Michigan

By J. H. Ahronheim, M.D.

Jackson, Michigan

EDITOR'S NOTE: The project of preparedness blood grouping of the civilian population as outlined by Dr. Ahronheim has proved to be a very excellent one. Dr. Ahronheim and his co-workers are to be heartily complimented on the thoroughness with which this has been done and with the results which they have achieved. A program of blood grouping in both critical target areas and non-target areas has been widely recommended. The National Security Resources Board and the Federal Civil Defense Administration both agree that such blood grouping projects are worthwhile, when they are related to blood procurement and the identification of group O donors. It seems necessary that future preparedness blood grouping projects should be confined to the identification of potential group O donors so that this previous screening will reduce to an insignificant number the groups of AB, A, and B donors who might present themselves. Dr. Ahronheim has kindly consented to write this as more or less of a "preview" of the Jackson project; his more detailed report will be published in the future in another journal.

MASS BLOOD typing of entire cities has always been considered a project of such magnitude that any suggestions in that regard have been met with a good deal of opposition. In recent months, however, the civil defense authorities have succeeded in arousing more interest among the leaders of the medical profession as well as the government. The Civil Defense Planning Commission of the State of Michigan has taken the initiative in that direction and decided to select one Michigan community to serve as a pilot city for such a project. This pilot study was to have the purpose of establishing standards of technical and administrative nature which would be a guide to other communities and would eliminate a haphazard and costly approach to such projects in the future. The community thus selected was Jackson, Michigan, a city with an urban population of slightly more than 50,000 and about the same number living in the surrounding rural area.

The pilot study was expected to give information on, and establish standards for the following: the project's organization, necessary equipment and material, personnel, technical details, optimal number of blood specimens processed daily, accuracy of technique, optimal number of blood collection, public relations, and cost. The study was begun on October 9, 1950, on more or less of a trial-and-error basis, and exclusively staffed with voluntary help. Through excellent co-operation of the local newspaper, the *Jackson Citizen Patriot,* the population was kept informed on the significance and progress of the mass blood-typing project, and the general interest aroused in this manner was, to a great extent, responsible for the success achieved thus far. When the project was well on its way and a regular routine of blood collecting and blood processing was established, a change from volunteer to paid help was made. At the time of this writing, between 600 and 800 blood specimens are collected daily by six blood collecting teams of five persons each and are processed in a laboratory staffed by two medical technologists and eight untrained helpers. After fifty working days, a total of 30,797 specimens were completely typed, representing close to 30 per cent of the population of the County of Jackson. Every specimen is tested for international grouping by the direct and reverse method, for the D-factor (Rh_o) and, if D-negative, for the C-factor (Rh').

The collection of the blood samples was found to be greatly a matter of public relations and proper co-ordination. The main source was not the individual but the group, such as, factories, schools, places of business, and social organizations. For the convenience of the public, typing stations were established in downtown department stores. Proper co-ordination between typing teams and the public made it possible to have a fairly constant and even flow of material at all times.

Primarily, every person typed was considered a potential recipient and, consequently, no age limit was set. At the same time, a huge file of all blood types is being created with this project, representing a virtually unlimited source of blood for transfusions. In case of major disasters, in peacetime as well as in war, it will now be possible to mobilize an army of volunteer donors at a moment's notice and supply direly needed blood not only to our own community but also to areas more exposed to possible hostile action.

The Jackson project is far from being completed, but sufficient data have been collected to serve as a guide for similar projects in other communities.

(Continued on Page 318)

Outline of Medical Defense Activities in the Wayne Medical Society

By C. D. Benson, M.D., and
M. L. Lichter, M.D.

Detroit, Michigan

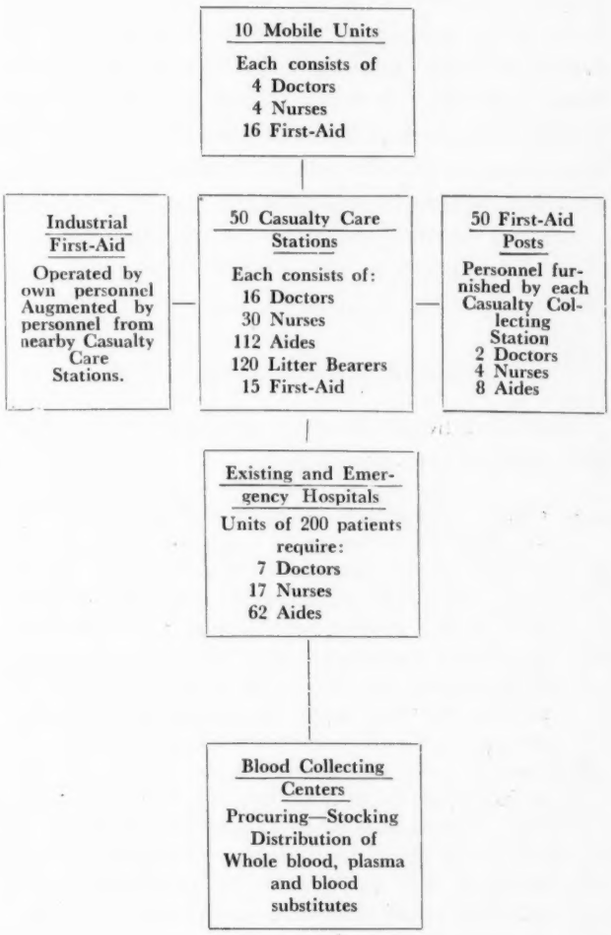
CIVILIAN defense is the defense of our existence, our very lives. It is the problem of survival of those mutually endangered. Its solution lies in mutual assistance, consideration, and concern each for another.

In many ways, the most important aspect of civilian defense is emergency medical care. Many moral issues could be raised to exalt the medical profession in this endeavor, but they would be mere platitudes and might be received somewhat cynically. The cold hard fact is that the survival of any one of us depends upon the survival of many others. In exigent circumstances, we are all bound to each other by the instinct to live. It is in anticipation of this powerful urge to survive that thorough pre-planning and complete pre-coöperation are vital in medical civilian defense. The success of medical defense planning depends upon the unselfish inspired participation of all doctors of medicine, not only in potential target areas, but throughout the entire state. Similar participation must be expected from nurses, other professional groups and the lay public.

When the Committee on Civilian Defense and Disaster of the Wayne County Medical Society was activated, it was found that no plan existed for the adequate care of people in the event of large scale disaster. The committee felt that before it could make any recommendations to the Council of the Society it would have to formulate a plan upon which to base such recommendations. It was decided that an atomic bomb disaster was, at the moment, the potentiality most immediately present. After a careful study of basic factors, the committee developed a medical defense plan which was presented to the Council of the Wayne County Medical Society and approved. It was felt that the plan as presented represented basic thinking necessary to the development of the final and detailed plan.

The major problem was the formation of a basic procedure to handle a suddenly-produced overwhelming number of casualties. For the sake of having some figure upon which to make estimations, it was assumed that one air burst atomic bomb might produce in the neighborhood of 50,000 fatalities and 50,000 injured. It was further decided that since there would be no way of foretelling the site of an atomic bomb disaster, all planning would have to be promulgated on a peripheral basis, emphasizing dispersal.

Chart 1. Units.



When one thinks in terms of medical planning for civilian defense, it cannot be too strongly emphasized that he must approach the subject as something which is entirely new, something of which there has been no previous conception. It is unrealistic to think that the problems which will exist can be integrated into our present-day method

Dr. Benson and Dr. Lichter are chairman and co-chairman, respectively, of the Civilian Defense and Disaster Committee of the Wayne County Medical Society.

of medical practice—that our present existing organizations can be expanded slightly or largely and the situation fitted in without too much disruption. That would bespeak an attitude of "business-as-usual," and would indicate a failure to grasp the elements of the problem. Again, it is emphasized that this represents an entirely new problem, unrelated to anything with which civilian populations and civilian medical people have ever had to cope. It must be understood that medical care must be furnished in as adequate a manner as can be devised, with the full realization that everyday high medical standards will not be attainable. It is with this viewpoint that one should think of the problem and thus be able to approach the task of planning.

It is not our intent to give a detailed presentation of the Wayne County Medical Society's plan, but merely to present a broad outline.

Outline of Medical Defense Plan

Chart 1 indicates the units which are required to give medical care in a disaster.

A. Mobile control units are to be developed to provide direction of evacuation of casualties, to decide on priority of such evacuation, to provide first aid to rescue personnel, to supervise initial first aid efforts in the disaster area and to make decisions concerning radiologic safety of rescue personnel. It is planned that there will be ten such units to go into the thick of the devastated area and disperse so as to cover the entire region.

B. Casualty care stations are to be set up on the periphery of the metropolitan area in school buildings. It is planned to develop fifty such stations to which all casualties requiring ambulance transportation will be brought for classification and necessary initial treatment. Each station will have its own first aid and litter teams together with its own transportation so that a fairly even flow of casualties could be maintained. An important function of these stations is that they act as buffers for the hospitals.

1. Each casualty care station will furnish personnel to establish first aid posts at approximately one and one-half miles from the center of the detonation for the purpose of furnishing definitive first-aid treatment to those casualties who are able to walk or get about by themselves. This will reduce the transportation load and reduce congestion at the casualty care station. In addition these first-aid posts would be able to give some medical care to very seriously injured casualties before they were transported to the casualty care station.
2. Any industry suffering from effects of an atomic bombing would be able to request additional personnel and supplies from the casualty care stations in its area. Casualties in industry requiring ambulance transportation would be taken to the nearest casualty care station and thus be integrated in the medical care program. Nearby first-aid posts would be ready to furnish definitive first-aid treatment to any of the walking casualties in the industry involved. Any industry not directly involved in the bombing would participate in the medical defense effort with its facilities, supplies and personnel.

C. In addition to the remaining existing hospitals in the area, emergency hospitals would be planned to handle a minimum of 22,000 casualties requiring definitive hospital care. These would be established to handle a minimum of 200 bed patients or a multiple thereof in order that there be no waste in efficiency of medical and other professional personnel. Casualties would be evacuated from the casualty care station to these hospitals according to a pre-arranged method. From these hospitals patients would be further evacuated to outstate institutions. As another means of coping with this tremendous patient load, the casualty care stations, as they completed their primary task of providing emergency care, could in turn become emergency hospitals.

D. Blood collecting and distribution centers would be established in peripheral locations under the supervision of and in co-operation with the American Red Cross. Uninjured survivors would be directed to these centers for the purpose of giving blood. Whole blood coming in from other sources would be sent to these centers. From the centers the casualty care stations and the emergency and existing hospitals would requisition whole blood and blood substitutes.

TABLE I. PERSONNEL

Personnel Type	Mobile Control Units	Casualty Care Stations (Includes First-Aid Posts)	Hospital Staffing (Based upon units of 200 bed patients, or an estimated total of 22,000)	Totals
Doctors	40	800	770	1,610
Nurses	40	1,300	1,540	2,880
Anesthetists		200	330	530
Nurses' Aides		5,600	6,820	12,420
First-Aid	160	750		910
Litter Bearers		6,000		6,000
Laboratory		500	770	1,270
Radiation Detection and Survey	175	100		275
Totals	415	15,250	10,230	25,895

Estimate of Personnel Requirements

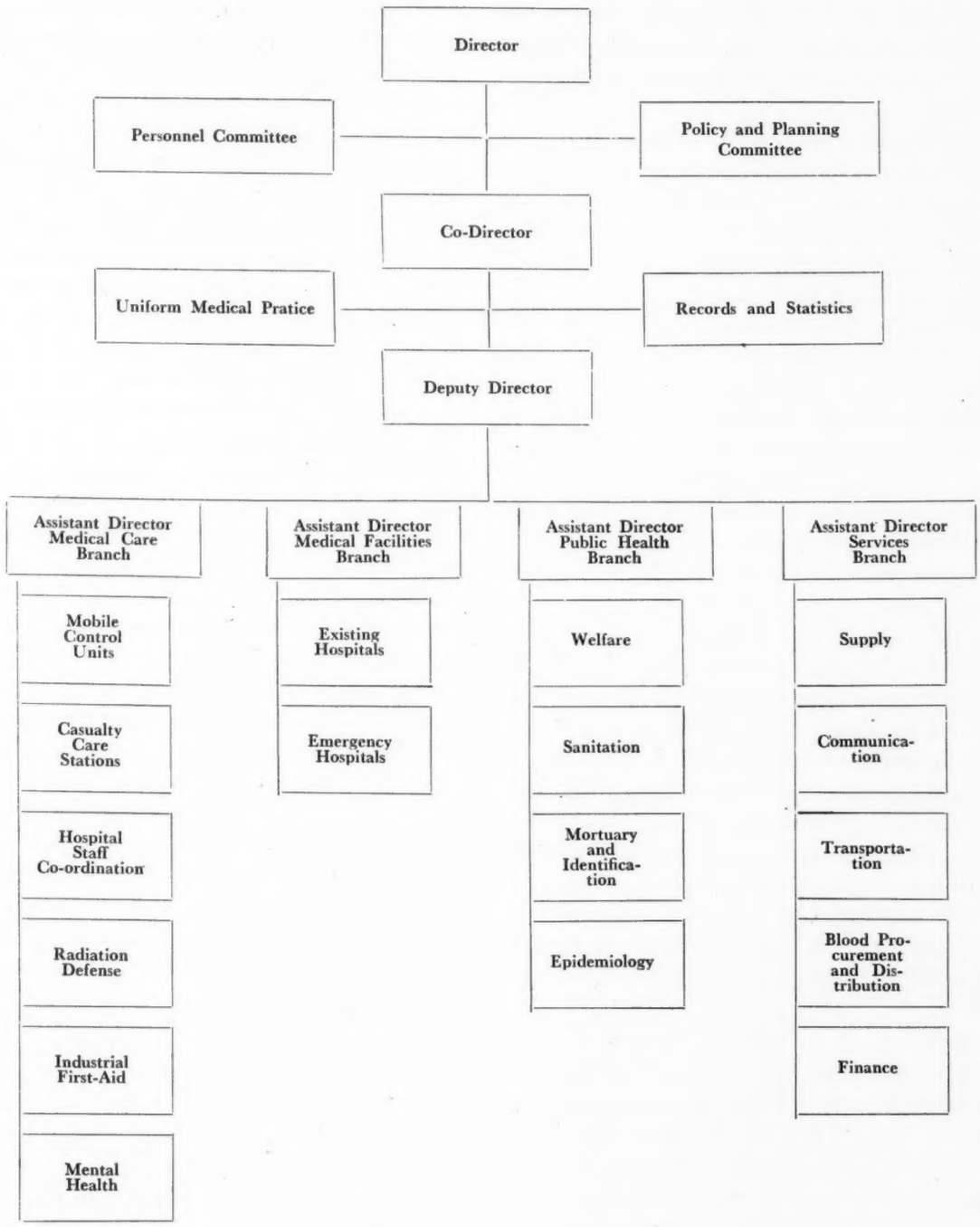
The foregoing effort requires a huge number of individuals and yet the estimate is considered minimal to do the job (Table I).

A. 1,610 doctors are required. It is estimated that 1,200 doctors will be available from Wayne County. The estimate, while it is rough, considers the possibility of casualties among doctors, and military service. Thus it can be seen that at least 410 doc-

tors from surrounding county and outstate sources must be planned. It has been felt that obtaining this number of doctors, and even more, will present no difficulties.

D. 6,000 litter bearers and 750 first-aid men are required for casualty rescue work.
E. It is estimated that a minimum of 1,270 laboratory personnel will be required.

Chart 2. Organization.



B. 3,410 nurses and nurse anesthetists are required. Again surrounding county and outstate sources will be called upon to augment the number that can be obtained in Wayne County.
C. 12,580 nurses' aides and first-aid personnel are required for casualty rescue work.
F. For radiologic detection and survey it is estimated that a minimum of 275 specially trained non-medical people will be required.

The total number of individuals required to make the plan work is nearly 26,000. It is hoped

that an even larger number of people will participate, so that no matter what the circumstances might be, somewhere near the minimum number will be available during the emergency phase.

Chart 2 is an outline of the organization of the Medical Defense Plan. It will probably not differ too much from the final organizational chart of the Medical Division of the Office of Civilian Defense in Detroit, except in the rearrangement of some of the sections.

The development and functioning of this plan has been designed in such a manner that it can be integrated in the over-all Civilian Defense Program of this area. The direction of a Medical Defense Plan is the rightful responsibility of the local Commissioner of Health, and such is the case in the City of Detroit. Several members of the Wayne County Medical Society have been asked to fill important billets in the organizational structure. This is chiefly in connection with the development of the Medical Care Branch. The medical facilities are to be developed by the Detroit Area Hospital Council in conjunction with county, municipal and federal government hospitals.

The personnel committee will be composed of a representative from each of the professional groups (such as nurses, dentists, et cetera) participating in the plan. Each of these individuals will be charged with the responsibility of procuring the professional personnel he represents as the need arises as the various sections in the plan develop.

The problem of uniform medical practice and that of records and statistics will be studied and planned by the Committee on Civilian Defense and Disaster of the Wayne County Medical Society.

The Public Health Branch of the Medical Defense Plan is to be the responsibility of the Health Department. Its work is in the process of active organization.

The problems of the Services Branch are tremendous. They require close co-operation with the Communications and Transportation Divisions of the Detroit Office of Civilian Defense. The problem of medical supplies and equipment is the biggest headache of all. It is recognized that a tremendous amount of medical material will be required. However, as yet, there has appeared no clear-cut directive as to where these supplies will come from and who will be responsible for furnishing them.

Figure 1 is a schematic representation of the distribution of the various units in the medical defense plan. An outline of the City of Detroit is presented, and imposed upon it is the pattern of destruction of an air burst atomic bomb. As can be seen each unit is represented by a different symbol. The major units are distributed in a peripheral fashion with the hope that some, if not all, of the units would be able to function regardless of the site of devastation. Immediately after the detonation, all individuals would go to the point of their assignment. The mobile control units, which would gather in various peripheral portions of the city, would be the very first units dispatched, to go as far as possible into the devastated area to carry out their prime function of direction of the medical effort from within. Practically upon their heels the ambulances from the various casualty care stations would transport the litter bearers, first-aid people, and the individuals assigned to the first-aid posts. The first-aid posts, to take care of ambulatory casualties, would be set up at about one and one-half miles from the center of the detonation. This might be the point at which the ambulance vehicles from the particular casualty care station would await litter casualties. From this point the litter bearers and first-aid personnel would go on foot into the devastated area for the purpose of rendering immediate first aid to casualties and litter transportation. The litter bearers would bring the casualties back to their own ambulances. The casualties would be transported to the station from which the ambulance originated. In this fashion it is conceived that a fairly uniform distribution of casualties to the various care stations would be possible. At the casualty care station, after proper classification and necessary treatment to prepare casualties for further transportation, evacuation to remaining existing hospitals and emergency hospitals would take place.

As has been stated, Figure 1 is schematic, and the explanation given is, necessarily, also schematic. There are many details which require solution in the functional aspect of this basic outline. It is conceived that the proposed distribution of units would enable functioning in the event of detonation of two atomic bombs. In this instance the units would have to be spread so as to cover each area, which would mean heavier casualty loads and more arduous work for participating personnel. This would, of course, be necessary because the job would have to be done. It is considered that there is enough flexibility in the planning to make this possible.

Other Committee Activity

The Committee has appointed several sub-committees to study very important matters, and these are worthy of some comment:

C. A sub-committee has been appointed to study the problem of radiation sickness and to develop uniform treatment procedures. In addition the sub-committee will make available to the chairman of education speakers on this phase of the problem for the medical education program.

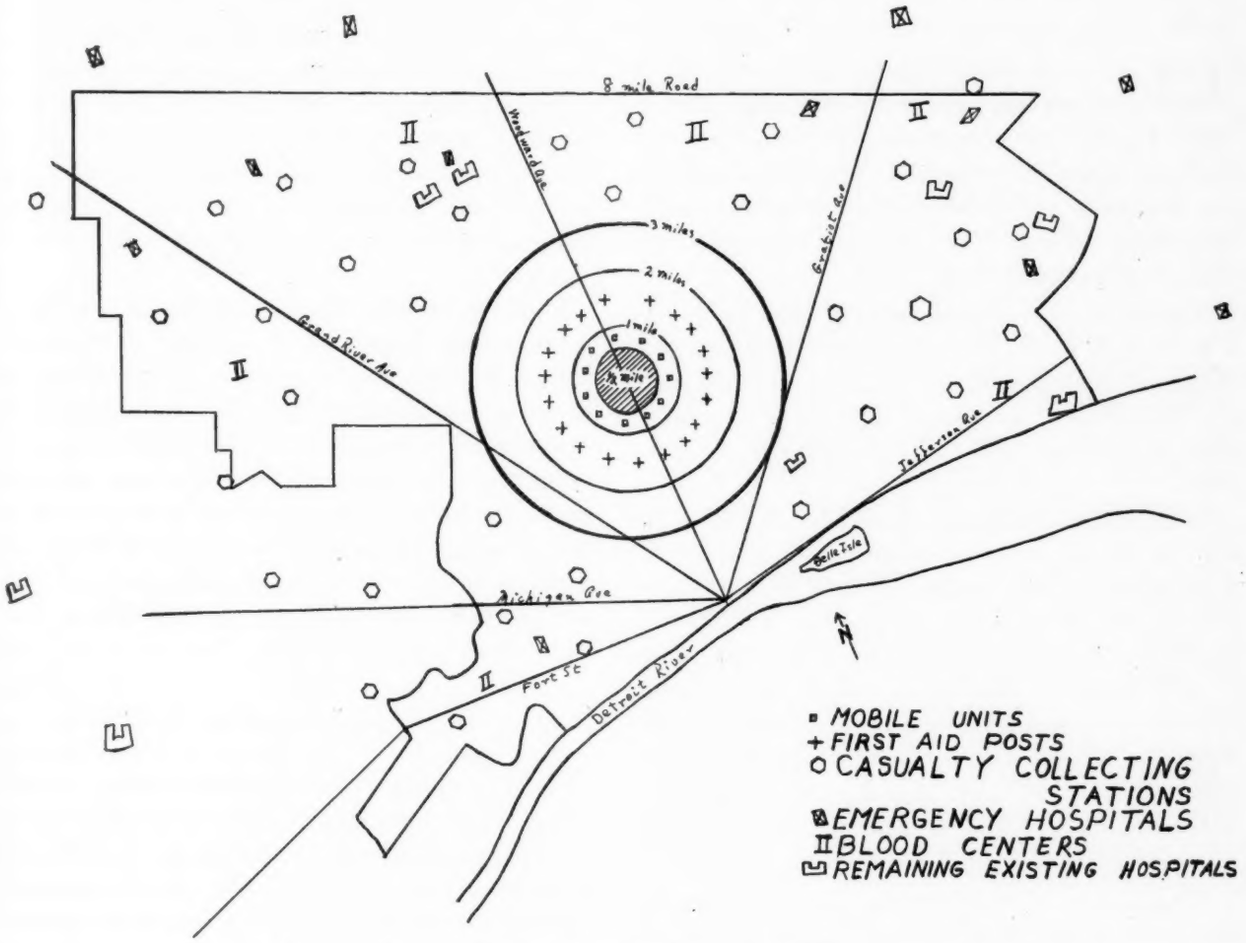


Fig. 1. Distribution units. Schematic diagram.

A. A sub-committee on education has been formed, and it is actively engaged in carrying out its assignment. The sub-committee is charged with the responsibility of education of doctors, nurses, non-professional personnel in the medical plan, and the general public. The chairman is a member of the Public Relations Committee of the Detroit Office of Civilian Defense. Under way at present is the educational program for doctors; this is being done at staff meetings of the various hospitals in the area. Planning is being developed for the other segments of the educational program. This committee is ready to co-operate with other county medical societies or other official groups in the state.

B. To develop standard methods of surgical treatment, several sub-committees have been appointed for this purpose. These are soft tissue injuries, burns and shock, chest injuries, orthopedic injuries, and maxillo-facial injuries.

D. A psychiatric sub-committee has been appointed for the purpose of studying psychiatric impact of large scale disaster on the population. It is to advise the education sub-committee on the best method of presenting pertinent material to the public in an effort to ward off widespread hysteria and panic. In addition the sub-committee is to develop a simple procedure of elementary psychotherapy which will be taught to all individuals participating in the medical defense plan. A final function is the development of plans for handling serious psychiatric problems in the event of a disaster.

E. A sub-committee on radiologic defense has been appointed. Its function is to develop plans and methods for radiologic detection, survey, decontamination where necessary, and standards of permissible radiation dosage.

(Continued on Page 318)

Take Cover! Atomic Bomb!

By Major Reynold A. Atlas

THE only real defense against the atomic bomb is to prevent one from going off, just as with a TNT bomb. We cannot prevent casualties—we can only reduce the number. Many thousands of the casualties at Hiroshima and Nagasaki could have been prevented or saved by proper knowledge, training, and plans.

Two basic types of atomic-bomb burst are: first, a burst high in the air such as at Hiroshima and Nagasaki, and second, an underwater burst such as "Test Baker" at Bikini. Essentially the same basic bomb was used, but with different adaptations.

Let's talk first about the atomic bomb exploding high in the air, as at Hiroshima. Casualties there were heavy—66,000 people killed, 69,000 injured—53 per cent of the city's population. Think of a small city of about 250,000 population where only 115,000 people remain uninjured, to care for over 69,000 injured people and to bury 66,000 dead. In Nagasaki, because a valley confined the damage to one portion of the city, casualties were lighter—39,000 deaths and 25,000 injuries. This was still a tremendously high toll for one bomb.

What caused all these deaths? The most amazing figure is the relatively small number caused by radioactivity from the bomb—only about 15 per cent of the total. Over half the casualties resulted from the blast—the same as in the bombings in Europe—only much stronger. As strong as the shock wave from the blast was, there were no cases of direct damage to internal organs. What caused the damage was collapsing buildings, flying debris, shattered window glass, et cetera.

In an American city, most of the buildings 1½ miles distant from the center of the bomb burst would require major repairs. Since the shock wave travels through the air, there would be no damage to roads, pipelines, or other underground installations.

At the hearings before the House Armed Services Committee, many were very surprised at the statement that a person could stand at one end of the Washington National Airport and come through an atomic-bomb explosion at the other end with "no serious injury." This is understandable if it is remembered that casualties are mainly caused by collapsing buildings and flying debris. Since the end of the runway is open country, there is really nothing to cause injury. About all that can happen to a person at that distance is to be knocked over by the blast, possibly breaking a leg and receiving skin burns. This is the reason that an enemy would not drop an atomic bomb in open country.

Thirty per cent of the A-bomb deaths were from burns, either from fires that resulted from the bomb—the same bomb fires as in Europe—or from the intense heat radiated by the enormously hot explosion. These flash burns come from exposure to the strong infrared and ultraviolet rays from the bomb, similar to the burns caused by the sun. Persons two miles distant received painful burns on exposed portions of their bodies, such as the face and arms. Severe burns resulted in heavy and ugly scar tissue of the skin.

Clothing Ignited

Clothing at one mile burst into flames. Those with light-colored clothing suffered less than those with dark-colored clothing because it reflected more of the heat rays instead of absorbing them. Thus, those wearing striped clothing were burned corresponding with the stripes. Paper, straw, and similar materials caught on fire more than two miles from the devastation, starting many more fires. The more fireproof construction in this country would decrease these casualties. There were few direct injuries to the eyes from the flash.

The damage done to the body by radiation from the atomic bomb, which is the same as from x-rays or radium, can be compared with that done by a bullet. If a bullet wounds you it does certain damage to the body. Then it is just a matter of recovery from the damage—you can forget all about the bullet. The same with radiation. It strikes instantaneously and does certain damage to the body. Then it is just a matter of medical recovery from that damage. You can forget all about the radiation because it is finished. You are not radioactive yourself. You cannot contaminate some one else.

Abstracted and reprinted by permission from the September-October, 1950, issue of *Ordnance Magazine*.

Little Radiation Danger

A few minutes after the bomb burst over Hiroshima the city was perfectly safe from radiation danger. All the damage had been done. Then it was just a matter of recovery—or burial. The city was, and is now, perfectly safe to live in. Crops now grown in the city are as good—or bad—as before the bomb went off. The bomb was purposely exploded high in the air to obtain the maximum blast damage, and, as a result, the bomb cloud containing the radioactive particles rose to a height of 35,000 feet and then drifted away so that there was no residential radioactivity in the city.

What is this damage to the body? The damaging effect of radiation is destruction or damage of the individual cell. The extent depends on the amount of radiation exposure and the type of cell —although the red and white blood cells are most seriously affected. Destruction of the circulating blood cells is a temporary loss. Damage to the mother cells in the bone marrow is more serious, affecting formation of new cells. Nausea, vomiting, headaches, and diarrhea are the immediate symptoms. Anemia, hemorrhage, and infection follow.

This radiation sickness does not show up immediately, except for very high exposures. It may take hours or even a day before the symptoms appear. They may then disappear and a latent period of a week or more follow when the individual can return to work. When the symptoms reappear, death may result a week or two later—or slow recovery.

Treatment for radiation sickness consists primarily in whole-blood transfusions, penicillin, and good nursing care. When a person has recovered, there is no loss of limbs, scars, paralysis, blindness, or physical disability. The result of exposure to radiation is either death or complete recovery.

One can be exposed to small amounts of radiation every day without any ill effect. You are also exposed to the radiation from the radium in the luminous hands on your watch. But since all this is well below the permissible dose, no one suffers from it.

The atomic blasts at Hiroshima and Nagasaki caused damage to the cells of the testes and ovaries of certain persons, resulting in some sterility, almost all this temporary. People imagined a future race of monsters would be born in Japan. This widely held misconception is completely false. The genetic effects are primarily to increase the number of mutations but not to change the abnormalities. Unusual new individuals are not produced.

To date there is no evidence of any change in the children of survivors of the Japanese bombings. Baldness that resulted from the bomb was also temporary. The hair grew back the same as before within two or three months.

The other type of bomb burst is under water, such as Test Baker at Bikini, in which case the results are very different. There is no searing flash to burn people and start fires. There is no tremendous blast to flatten a large area of the city. An immense column of water is thrown up, a mile high, weighing millions of tons. From this comes a mist containing the radioactive fission products, spreading out over an area of many square miles. There is not the enormous instantaneous radiation as from the high air burst, but the radioactive mist radiates enough in a few minutes or a few hours to so damage persons in this area that they can die in a matter of days.

The principal hazard is due to the lingering radiation wherever fission material has fallen. The intensity of the radiation decreases very rapidly in a little while, so that the longer one can remain out of the area, or in a safe shelter, the better.

Of course, some cannot wait for the radiation to decrease, such as first-aid people, radiological defense monitors, and recue parties. They may have to go into the area immediately and take their chances. This was the same situation as with the first-aid men during the last war who often had to work under fire.

Depth Determines Danger

The extent of the contaminated and dangerous area depends greatly on the depth of water where the bomb is exploded. At Bikini, the lagoon was 180 feet deep. If a bomb went off in San Francisco Bay where the water is 50 feet deep, for example, the area contaminated would certainly be much less. This is the same situation in most harbors in this country. In many places to get good results from an underwater burst it would be necessary to go so far out to deep water that there would be relatively little contamination falling on the city.

Which type of atomic burst an enemy would use we can only guess. Most authorities believe that the high air burst such as at Hiroshima will be used primarily because it will result in the most damage

and casualties from blast, burns, and fires. Only 15 per cent of the deaths would be due to radiation. However, we must also be prepared for the residual radioactivity of an underwater blast.

An Expensive Weapon

Regarding the expected use of the atomic bomb, this weapon is now, and probably always will be, very expensive. To give an idea of the cost, the Atomic Energy Commission received an appropriation of about one billion dollars this year. Divide this by an estimate of the annual production of atomic bombs and one can see what they cost. Therefore they will be used only against very high priority strategic targets, densely populated areas, concentrated industries, and other critical areas. They probably would not be used against dispersed troops in the combat zone or other targets as widely dispersed.

Fortunately the atomic bomb is not very suitable for large-scale sabotage—except in magazine stories. Certainly the clandestine method of delivery is not likely to be used to start a war. The A-bomb is, however, very suitable for a limited amount of sabotage, both because of the enormous damages that one bomb properly placed will do and because it is so difficult to detect.

Atomic contamination of drinking water is not too probable, although always a potential hazard. In a few extreme cases where a special type atomic bomb would be dropped directly into a reservoir, it might be necessary to rely on water from wells or trucked in from another area for a short time. After that, controlled use of drinking water would be within a wartime tolerance. If a large city, such as New York, had its water supply contaminated with radioactive isotopes, it might be in great difficulties, but it would not be a catastrophe to the people there. Decontamination, which is removal of the radioactive material, is rather difficult, but it can be done. In the case of individuals, it must be done to prevent serious internal injury.

There is no way to destroy any radioactive material, stop it from radiating energy, or render it harmless. We can burn it, melt it, dissolve it, put an electric charge through it, but the material will be just as radioactive as before. We can only remove it—primarily by physical means—and transfer it someplace else where it will not bother us, such as by dumping it at sea or burying it in a deep hole.

Washing with lots of good soap and water is the primary means of decontaminating individuals, in which case the radioactive material goes down the drain. After the underwater blast at Bikini much decontamination was done by washing contaminated ships with water from fire hoses.

But to be realistic, during a war we expect danger—not peacetime safety. In addition, exposure after an atomic explosion is for a rather short period. The wartime tolerance has not been set as yet, but it may be very much more than the present peacetime tolerance. We know what the danger is from higher exposures, but that does not mean that we can always avoid overexposure. In time of war, we will often have to overexpose many people deliberately.

The atomic bomb is newer, more powerful, and more complicating than any other weapon, but it is just an additional hazard in a total war. It is certainly not the final end to everything. It does not mean the complete destruction of any country. We cannot prevent casualties from it, but we can do much to minimize them.

As an example, many thousands of people in Hiroshima and Nagasaki died because they did not bother to take cover when the air alert sounded; others bled to death or died from other medical causes because they did not receive first-aid treatment in time. Thousands of people were burned to death because they were not rescued from burning buildings soon enough.

However, let us not become too complacent about the atomic bomb and think that it is overrated. Just remeber the 135,000 casualties in Hiroshima from one bomb—from an old-fashioned obsolete bomb at that. The present-day bomb can do far more damage.

Three Important Facts

There are three important facts to remember about the atomic bomb used at Hiroshima: (1) casualties, 135,000 plus tremendous damage from one bomb; (2) of the deaths, 85 per cent resulted from blast and burns, only 15 per cent from radiation; (3) soon after the bomb exploded the radiation was finished. The resulting disaster was like any other—only bigger.

MSMS

In breast cancer there are several diagnostic methods which may be of considerable aid in reaching an accurate diagnosis. Probably the most important is careful but gentle palpation of the breasts by a well-trained physician.

Detroit Physiological Society

Meeting of November, 1950—Detroit

Transamination in Normal and Induced States of Growth

PAUL D. BARTLETT

Edsel B. Ford Institute for Medical Research, Henry Ford Hospital.

Low transaminase activity in rapidly growing embryonic, malignant, and regenerating tissue, and marked uptake of ingested N^{15} in the dicarboxylic acids of tissue proteins suggest an inverse relationship between transamination and the synthesis of proteins and an important function for transamination in the dynamic state of amino nitrogen. Studies on aspartic-glutamic transaminase and concentrations of α-amino acids and glutamine in normal and induced states of growth have proven particularly interesting in this respect.

Treatment of normal adult female rats with anterior pituitary growth hormone produces no change in hepatic, renal, or skeletal muscle transaminase. Transaminase activity in skeletal muscle of rapidly growing normal rats is lower than in similar tissue of adult normal and immature hypophysectomized rats. Growth hormone preparations at low dosage levels sufficient to produce the physiological response of gain in body weight produced a significant decrease in the transaminase activity of the *tibialis anticus* muscle of immature hypophysectomized rats. Concentrations of α-amino acids in skeletal muscle of hypophysectomized rats in induced states of growth and in rapidly growing normal rats are higher than in normal adult and untreated hypophysectomized rats, while concentrations of glutamine are lower. Hypophysectomy appears to have no effect on the hepatic or renal transaminase of rapidly growing immature normal rats. A decrease in liver weight and an increase in hepatic transaminase were observed in pair-fed hypophysectomized rats treated with anterior pituitary growth hormone and in normal rats maintained on a greatly restricted food intake. Renal transaminase was unaffected. Growth hormone had no effect *in vitro* on the transaminating capacity of liver, kidney, or skeletal muscle homogenates prepared from untreated hypophysectomized rats.

Treatment of Paroxysmal Supraventricular Tachycardia with Neosynephrine Hydrochloride

JOHN M. CZUJ and SEYMOUR K. WILHELM

Mt. Carmel Mercy Hospital

Fourteen out of fifteen attacks of supraventricular tachycardia occurring in 13 patients were treated successfully with Neosynephrine Hydrochloride after other methods failed. A freshly mixed 1:2000 dilution of the drug was administered intravenously within a period of twenty to thirty seconds so as to get a precipitous rise in blood pressure. The theory was that a rapid rise in pressure within the aortic arch and carotid sinuses elicited cardio-inhibitory reflexes with resultant bradycardia. A systolic pressure of 160 mm. of Hg. appeared to be the level at which these inhibitory reflexes were set up terminating the tachycardia. The average therapeutic dose was 1.0 mgm. although the patient was given an initial dose of 0.5 mgm. to assay the pressor response. In the successful cases, the time of conversion to normal sinus rhythm was twenty-five to ninety seconds after the beginning of the injection.

Side effects included tingling, coolness, anxiety, precordial pain and headache. Low blood volume as in hemorrhagic shock rendered the drug ineffective. Subcutaneous and intramuscular injections did not give the desired responses. Previous administration of barbiturates and adrenolytic drugs dampened the efficacy of this drug.

Arteriosclerosis, hypertension and any arrhythmia except supraventricular tachycardia are contraindications to the use of this drug. The possibility of cerebral hemorrhage or ventricular arrhythmias remains although none have been reported. A normal or elevated blood pressure during the attack defeats the purpose of the drug.

Where mechanical methods fail, Neosynephrine may prove to be the treatment of choice in selected cases of paroxysmal supraventricular tachycardia.

The Solubility of Bone Salt and its Relation to Calcification

ADRIAN C. KUYPER

Wayne University College of Medicine

Calcium and phosphorus are present in normal plasma in concentrations which suggest that they are solubility equilibrium with the bone salts. The question arises as to whether or not this state of solubility equilibrium actually exists. Such a state of equilibrium would be a fundamental relationship which would control not only the levels of calcium and phosphate in the blood but also the calcification process in both normal and pathological states.

In order to show that this state of solubility equilibrium exists it is necessary to demonstrate that the amounts of calcium and phosphate ions in the blood are the same as the amounts in solubility equilibrium with inorganic precipitates or bone, when these are equilibrated with inorganic salt solutions. This has been done. However, this state of equilibrium is reproduced only over a limited period of time; over a long period of time the solubility decreases and becomes less than the corresponding solubility in plasma.

A second condition for the existence of this solubility equilibrium is that precipitates formed *in vitro* from solutions of the general composition of blood plasma have the same general composition as bone. Within the limits of experimental error, results so far reported indicate that this is true. Thus, the magnesium, citrate and carbonate contents of the bone are about the same as those of inorganic precipitates.

A consideration of the solubility levels of calcium and phosphate in pathological states indicates that in at least some of these, as apparently in the normal individual, bone salts are in saturation equilibrium with the serum salts.

SURVIVAL SHELTERS

(Continued from Page 274)

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(Continued from Page 277)

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Detroit Surgical Association

Meeting of January 22, 1951

The Surgical Treatment of Massive Lymphedema

DARRELL A. CAMPBELL, M.D.
Ann Arbor, Michigan
JOSEPH K. ISLEY, M.D. and
WILL W. GLAS, M.D.
Wayne County General Hospital, Eloise, Michigan

Chronic lymphedema of the lower extremities is often a progressive and totally disabling disease that does not yield to conservative measures. The type under discussion is a sequel to infection. Ineffective operative measures in the past have included scarification, excision of skin, subcutaneous implantation of fascia, silk threads and other foreign materials to assist lymph flow. A major surgical procedure was introduced by Kondoleon in 1912. Homans suggested, in 1936, the total excision of diseased subcutaneous tissue below the knee, sparing the skin. Macy, in 1940, and Poth, in 1947, reported experiences with the excision of all skin and subcutaneous tissue of the leg below the knee, with coverage by free skin grafts.

The technical details of this operation as modified by Blocker was described as performed on three patients. Case histories and progress reports of these three patients were presented and illustrated by photographs. All obtained relief of symptoms, and the two mentally competent were restored to active labor. The authors conclude that this technique is a satisfactory method of treating severe chronic lymphedema.

Solitary Pulmonary Masses

GEORGE E. DIMOND, M.D. and
G. THOMAS MCKEAN, M.D.
Veterans Hospital, Dearborn, Michigan

Solitary pulmonary masses, circumscribed tumors of the lungs, and pulmonary "coin" lesions are clinical terms commonly used to describe a group of diseases of the chest that have many roentgenographic features in common, but have a highly variable etiology. They can be arbitrarily defined as solid lesions of pulmonary origin without surrounding infiltration. Many authors, however, include masses of mediastinal, pleural, or extrathoracic origin which clinically appear to arise in the lung.

The recent literature contains reports of 223 such masses that have been positively identified by exploratory thoracotomy. Approximately one-third were turberculomas, one-third were bronchogenic carcinomas, and one-third were comprised of a wide variety of miscellaneous conditions. Unquestionably, the percentage of bronchogenic carcinomas would have been considerably higher if only masses of pulmonary origin were considered. The most common types of masses in the miscellaneous group were fluid-filled bronchogenic cysts and benign tumors of the lung. All authors were unanimous in pointing out the difficulties of exact preoperative diagnosis and in urging exploratory thoracotomy without undue delay.

The authors' own experience is similar. Thirty-four such masses have been seen in three years. Sixteen exploratory thoracotomies yielded bronchogenic carcinoma in eight; four metastatic malignancies; tuberculoma, abscess, lipoma and aneurysm of the left ventricle, each one. Of those not explored, bronchogenic carcinoma was widespread in eight, tuberculosis stable in three, coccidioidomycosis known in four, Hodgkin's disease proven in two, and one hamartoma found in a moribund patient.

The authors conclude that solitary pulmonary masses should be examined by thoracotomy unless the mass can be exactly identified promptly otherwise. The high incidence of bronchogenic carcinoma in these lesions is the justification.

Detection of Lymph Node Involvement in Neoplastic Disease

RICHARD B. BERLIN, M.D., and
OSBORNE A. BRINES, M.D.
Wayne University College of Medicine and Receiving Hospital Detroit, Michigan

The importance of meticulous examination of surgical specimens for the detection of involved

(Continued on Page 318)

Beacon or Torch

Eight months ago, your Council approved the appointment of a special committee to bring us the latest authentic information on all phases of fission energy, as well as atomic, bacteriological and chemical warfare. This issue of THE JOURNAL of the Michigan State Medical Society is dedicated to their efforts. We are especially indebted to those men of science outside our own profession who serve on this committee and who contributed to the Atomic Number. For the present, the Committee has confined its efforts to the destructive forces of atomic energy and the best ways of reducing casualties. It is a sad commentary, to the state of a world torn by conflicting ideologies and hates, that we should first deal with the destructive horrors of nuclear energy rather than the constructive phases more becoming to men of research. Only time can answer the inquiry as to whether science has created a beacon to health and longevity, or a torch for the eventual destruction of the human race.

The people of this country are exposed to a real danger. No sane person would minimize it. There are holes in our radar defense large enough to expose any of our large, thickly populated centers. In view of this danger, we believe the medical profession is charged with the duty of not only perfecting the best methods of rendering aid in case of disaster, but of telling our citizens how they can best protect themselves. This issue contains that information and should be filed as a quickly available reference.

As new emergencies confront the medical profession, our gratitude increases to those who conceived and initiated the CAP (Co-operation with the American People) plan in Michigan. We have here an organization that can be set in motion on short notice. Today, more than ever before, it is necessary that we keep our patients informed as to what constitutes good legislation and what is conceived to promote further socialization. We must keep our friends and patients aware of the qualifications of those who would represent us

on the political front. Have you noticed the pictures depicting hate and distrust on the faces of those who represent the various nations surrounding the United Nations' conference tables? Lacking all details we are in no position to judge who is right or who is wrong, but we do know that such an atmosphere plus the A or H bomb jeopardizes all of humanity.

In our planning, we have been accused of contributing to nervous tension and psychosis. We believe the American people have always displayed a splendid courage and, on the contrary, will gain confidence and stability in planning for any eventuality. We believe their faith in God and freedom, as we have come to know it, will eventually activate the Atlantic Pact to the point where all true democracies can be assured their rights will be protected. If the democracies will first become adjusted among themselves, then we can expect mounting resentment to the tyrannies of communism sufficient to bring about revolutionary reforms in those countries. This, then, becomes our beacon of hope, and may the torch of annihilation never be lighted!

File this issue of JMSMS.

File subsequent issues of JMSMS.

File the MSMS Secretary's Letters.

Give freely of your time to your professional organizations.

WE ARE OUR NEIGHBOR'S KEEPER.

Grateful acknowledgment is hereby made to various County Society Civil Defense Committees, the Michigan State Medical Society Civil Defense Committee, the Special Committee on Atomic and Allied Procedures, and all others who have actively contributed.

C E Umphrey M D

President, Michigan State Medical Society

President's Message

Editorial

LEST WE FORGET

WITH an all-out defense effort to avert World War III, or to be prepared in case it comes, all are ready to make necessary sacrifices. The American people have always done their utmost in time of war and always will, but when they give up some cherished rights and privileges, they hope to have them restored. The pressure of major war effort, however, does not warrant trends to socialism which have definitely been repudiated.

Many of our doctors have congratulated themselves upon the results of the last election in which imposing arrays of left wingers, or active socializers, were removed from public office. The President's two attempts to establish Oscar Ewing in a Department of Health and Welfare were defeated. The threat to socialism and socialized medicine presumably was averted!

The President sent two reports to Congress in January, 1951, in which he stated:

"First, we cannot afford in the immediate future to devote as large a part of our resources to the improvement of health services and facilities as we had planned to do in normal peacetime. But we cannot maintain a sound base for whatever military mobilization may be needed in the months or years ahead, if we let sickness and inadequate health standards continue to take their heavy toll. We must devote somewhat more of our resources toward improving the health of the general public. Whether the children of today will be the soldiers or civilians of tomorow, they must grow to a strong and healthy maturity. It is not enough to train people as workers—or soldiers. They have to be healthy enough to get a job and do it effectively. Right now, sickness is keeping about a million workers off the job every day. Right now, failure to meet health standards is making about a quarter of our young men unavailable for military service. During World War II, about six million men were rejected by the armed services for physical or mental disabilities."

He further states:

"We cannot afford this waste of manpower, our most vital resource. As a first step, we must obtain more doctors, more dentists, and more nurses. The growing needs of the armed forces, piled on top of civilian needs, threaten the most dangerous shortages unless prompt action is taken by the Congress."

In his Budget message (The Defense Budget of 71.6 Billions of Dollars), he proposed a new payroll tax as follows: "Receipts and expenditures under the proposed medical care insurance program would be handled through a trust account paralleling the procedures for old-age and survivors' insurance. A period of preparation will be required to set up the health insurance system. I am proposing that in the meantime a small payroll tax of one quarter of one per cent each on employes and employers be levied to provide for initial expenses."

Section 23, S. 1, authorizes the President to socialize medical care and hospitalization for a large segment of the population by providing for the physical and mental rehabilitation by the Federal Government of registrants who are rejected for failure to meet standards for physical and mental fitness prescribed by the Secretary of Defense. This is a request by the Executive Department for vast new powers and federal expenditures in an area only remotely connected with defense. Here, in the guise of a national defense measure, is a new health proposal that surpasses, in the extent to which it nationalizes medicine, even the compulsory health insurance bills that have been introduced for so many years.

This direct quotation from the President's proposals to Congress is sufficient evidence that the socializers are determined to bring about the socializing of medicine under any guise or schemes which they may use for their purpose, even taking advantage of our desperate need for national defense. Thank God for our CAP. We have planned well. This bit-by-bit legislation can be stopped.

SABOTAGE

THE CHIEF-OF-STAFF of one of the hospitals in Michigan, about 175 beds, became alarmed at the shortage of available beds for emergency and studied the cases in his hospital. Thirty-seven patients had been in more than two weeks. One individual had been there for many weeks, had an eight-hour daily pass, and used the hospital for sleeping and meals. An orthopedic patient had been held six weeks in order to be in the hospital for check-up x-rays when a change of cast was due. Many medical patients had complete run of

the hospital and grounds and only used their beds for sleeping at night. One diabetic patient had been in for weeks just to get an insulin injection once a day. An old man over ninety was hospitalized over the holidays so his children could be free to celebrate. This is just a few abuses discovered.

The Chief spoke to his staff at their meeting and within two hours, fourteen of these patients had been discharged. Abuse of this type, or neglect can effectively do damage to our hospitals. It can make beds so scarce that needy cases cannot get care. Also, it will dissipate the funds of Michigan Hospital Service and Michigan Medical Service, the Blue Cross-Blue Shield program in which our medical profession has had such a vital interest. Both are "our baby" and our responsibility. Exhausting "our" resources tends to dissipate the effectiveness of the one actual protection we have against socialized medicine.

We are making this report and inviting attention to this situation in accordance with instruction of The Council at its annual session in January, 1951. We believe most of these abuses were unintentional or thoughtless, but should be called to our members' attention. These are lapses which make "medical costs" excessive. Hospital costs are the highest they have ever been and are going higher. If the rates for hospital service protection go too high, they will be prohibitive, and our great voluntary movement will necessarily be curtailed, priced out of existence. Michigan Hospital Service is paying about three million dollars per month to hospitals now. Michigan Medical Service is also affected by this same abuse. It is paying more than one million dollars per month for patients' benefits. Thousands of people who could not have medical and hospital care otherwise, except at great sacrifice, are being protected. However, if by overutilization these two institutions are hurt, we are sabotaging and helping to destroy our one and only security and are defeating the profession's program for the better distribution of medical and health care to our patients.

Ask yourself, Doctor, *is this hospital service and medical care in the hospital absolutely necessary?*

MEDICAL EXAMINATIONS

MANY TIMES doctors are asked to make examinations of patients. Upon these reports, important decisions depend: the man's ability to return to work, his eligibility for benefits, the responsibility of industry, or the State, or insurance, to assume various obligations and payments often for months or years.

We believe most of our doctors enjoy making these examinations, do a very thorough job, and make their reports in such a manner that reviewing officers are able to picture the exact condition of the patient and to render a judgment as to action which should be taken. Such reports have been made for several years to the Veterans Administration. The future life of the veteran has been involved in most cases. His benefits—what the government owes him as a former soldier—are dependent on the clarity of the report given.

The State Department of Social Welfare will be asking us to make such examinations and reports, and much will depend upon their clarity.

For some years, the Department has had the responsibility of old-age assistance for needy persons over sixty-five years of age. Also aid to dependent children who are under sixteen years of age (or under eighteen years of age if regularly attending schools), who have been deprived of parental support by death, continued absence from the home or incapacity of a parent. The Department also is responsible for aid to the blind who are over sixteen years of age. Beginning this year the Department will be responsible for aid to the disabled, an entirely new category, number unknown, of needy persons over 18 years of age who are totally and permanently disabled; that is, bedfast or homebound, and unable without assistance to carry on the activities essential to daily living.

Detailed reports of examinations for these persons should picture the exact condition so that the reviewing officer may understand the needs, be able to classify the person and determine the State's responsibility. Each one of these may involve enormous expense to the State, sometimes for life, including food, clothing, housing, medical care, custodial care and actual assistance in performing the daily functions of living.

In most of these groups when the State requires such an examination, it will pay the physician. We are sure our members will consider that this service is not only a part of their medical service but is a part of their citizen's duty to their patients, to themselves and to the State, and will make their reports promptly, completely and accurately.

NEW COUNCILLOR

GILBERT BELL SALTONSTALL, M.D., Charlevoix, Michigan, has been appointed Councillor of the 9th District to fill out the unexpired term of Ellery A. Oakes, M.D., resigned.

Dr. Oakes has given many years of faithful service to the Michigan State Medical Society, in the House of Delegates as its Speaker and on the Council.

Dr. Saltonstall has also devoted many years as a County Society officer, as a committee man of Michigan State Medical Society Committees and as chairman of the County Secretary and Editor's Association.

Dr. Saltonstall was born in Cheboygan, Michigan, May 7, 1908. He has his B.S. Degree from the University of Michigan, 1931, and M.D., 1933. He interned at Grace Hospital, Detroit, Michigan, and received the Michigan State Medical Society Fellowship on Postgraduate Education in 1942.

He is a member of the American Academy of General Practice, K of P, B.P.O.E., Phi Mu Alpha, Alpha Kappa Kappa. He is Chief of Staff of Charlevoix Hospital.

THE ATOM IN WAR AND PEACE

THE COUNCIL of the Michigan State Medical Society is happy to present to our members a number of THE JOURNAL devoted to the atom. We have selected this, the March number, which for several years has been devoted to cancer, for the reason that radiant energy has been one of our mainstays in the fight against cancer and the two subjects seemed naturally to come together.

We have been amazed at the amount of material available for this unique number of THE JOURNAL. We are presenting about thirteen papers bearing upon the subject, and have curtailed the material on cancer, which will be published later.

Atomic Energy has been a subject of conjecture and study for many years. When the Editor was in school, we were taught that the atom was the ultimate particle of matter, and could not be divided. Soon, however, the Curies demonstrated that certain atomic material seemed to disintegrate, giving off energy and radiant activity.

We remember reading a very challenging story many years ago, author and book long since forgotten, which pictured what would sometime be common—propulsion of vehicles by controlled atomic fission. Jules Verne, one remembers, predicted the submarine, the incandescent light, and many other devices now common.

The Atomic Age is now upon us. We have used atom explosion for destruction in war. We must use it for beneficial purposes. The University of Michigan has undertaken for that purpose, the Phoenix Project, as a memorial to its alumni who served and sacrificed. At Ann Arbor, October 2, 1950, the University asked an endowment of six and a half million dollars for the study of atomic energy in industrial and private use—social, economic and ethical. One of the early contributions was from General Motors Company, granting one and a half million dollars for a directed study of uses of atomic information in industry. The Phoenix Project is growing and deserves every support individuals and others may give it.

Late in January, 1951, a considerable grant was made to the Dow Chemical Company and the Detroit Edison Company to determine the feasibility of using atomic energy to develop electrical power. Other atomic possibilities are legion and, if properly controlled, promise great good, as well as terrible defense from attack.*

*Recent announcements indicate work on an atom propelled airplane.

ATOMIC WAR AND DEFENSE

THIS ISSUE of THE JOURNAL of the Michigan State Medical Society is devoted to a general and current review of the medical problems associated with the contemporary methods of waging war. It is obvious that, for reasons of national security, little will appear in this symposium that is new or startling in the realm of atomic bombing, and chemical, radiological, and bacterial warfare, although certain members of the Committee on Atomic and Allied Procedures are well aware of the most recent developments. It is hoped, however, that this particular issue will prove useful enough to be filed carefully in the event this knowledge is needed. All should once again be reminded

that with the perfection of the long range bomber, complacency has ceased to exist on the globe.

The composition of this committee should be of interest to the physicians of Michigan and to others who read this issue. Essentially half of the members are physicians and the remainder are physicists, chemists, biophysicists, and bacteriologists. All of the members have had training or experience in the newer warfare in some phase, and some have been present at the demonstrations and experiments at Los Alamos, Bikini, Camp Detrick and Eniwetok. This committee should be of value to various other committees, or groups, in that it constitutes authoritative counsel for certain scientific problems within its scope.

The paper by Macon Miller may savor of technical detail to such a degree that the average physician, with a dim knowledge of nuclear physics, may not appreciate the excellence of its explanation, but should gain much from it. The committee felt that the incorporation of a paper of this character was required to make the symposium complete.

Dr. Grebe's paper speaks of the perplexing and highly successful technique of psychological warfare, a matter which we now in a minor sense experience with the reading of each morning paper, or the rendition of each radio news broadcast, a technique that can reduce civilian defense measures, no matter how much they might anticipate, to a chaotic failure. Members of the Society are urged to call the attention of their local civilian defense authorities to this excellent and pointed article.

Similarly, Dr. Corrigan's résumé on the detection of radio activity may serve as a guide to local defense organizations, and his brief account of the grim and insidious possibilities of radiological warfare deserves close attention.

During the last three months, the progress of the mass blood-typing program in Jackson has aroused considerable interest in the lay press and also among local defense groups and physicians. The accomplishment of Drs. Schmidt and Ahronheim is the more remarkable in view of the fact that their project was in full swing after a warning period of less than six days. The editorial comment merely is the consensus at the present time of national groups, this Committee, and the Blood Bank Committee of the Michigan Pathological Society. It is not appended with the idea of minimizing the value of an extremely valuable experiment.

While it is exceedingly difficult for Dr. Kaump and his collaborators to determine the exact amount of blood and plasma desirable in the event of catastrophic bombing, the figures quoted, nevertheless, represent the opinion of a number of informed individuals. Since this paper is concerned with immediate measures, it does not emphasize the need of whole blood at a later date for the treatment of possible aplastic anemias.

In the articles dealing with blood and blood plasma substitutes, it is interesting to note the strides taken by this state in contrast to many others, with the possible exception of those in the extreme West.

In the near future, the committee will offer articles on the present status of chemical and bacteriological warfare. In the case of the former, informed sources apparently fear only the use of the nerve gases, the isopropylfluorophosphates. Pharmacologically, such agents produce a flaccid paralysis by their action on the myoneural junction closely simulating nicotine poisoning and in a measure relieved by the use of atropine. How much can be disclosed for the purposes of civilian defense in the case of the various bacterial weapons can only be a cautious guess, since this phase is so closely hedged by the interests of national security.

A. A. Humphrey, M.D.
Committee on Atomic and Allied Procedures.

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Especial appreciation is due Dr. A. A. Humphrey and Dr. Traian Leucutia for editorial assistance in preparing this edition of THE JOURNAL.

Annual Session of the Council

January 19-20, 1951

HIGHLIGHTS OF THE COUNCIL

- Auditors' (Ernst and Ernst) report for 1950, and budgets for 1951 approved. See pages 314-317.
- Annual Reports of Secretary, Treasurer, Editor, and of three Standing Committees of The Council accepted.
- Secretary L. Fernald Foster, M.D., Treasurer, A. S. Brunk, M.D., and Editor Wilfrid Haughey, M.D., re-elected.
- Progress report on Michigan Medical Service presented by R. L. Novy, M.D., Detroit, President.
- Progress report on Michigan Hospital Service received from Wm. S. McNary, Executive Vice President, Detroit.
- Official report of MSMS Delegates to American Medical Association on Cleveland Clinical Session was accepted.
- Committee reports presented by: Postgraduate Medical Education Committee, Committee on Venereal Disease Control, Preventive Medicine Committee, Legislative Committee, Maternal Mortality Study (sub-committee of Maternal Health Committee), Rural Medical Service Committee, Emergency Medical Service Committee, Permanent Conference Committee, Committee to Study Veterans Facility at Grand Rapids, and Committee of Ophthalmologists.
- Monthly reports of President C. E. Umphrey, M.D., Detroit, President Elect O. O. Beck, M.D., Birmingham, Secretary L. Fernald Foster, M.D., Bay City, Rheumatic Fever Control Co-ordinator Leon DeVel, M.D., Grand Rapids, Legal Counsel J. J. Herbert, Manistique, and Public Relations Counsel H. W. Brenneman, Lansing, accepted.
- Annual reports of individual Councilors on condition of profession in each District were presented.
- Brochure and form letters to be used in the Invitational Membership Campaign were presented and approved.
- Final report of Special Committee to Study Veterans Facility at Grand Rapids, as requested by Michigan Civil Service Commission, was approved and referred to Civil Service Commission.
- Report on medical procurement presented by Grover C. Penberthy, M.D., Detroit, Chairman Michigan State Volunteer Advisory Committee, Selective Service System, and C. I. Owen, M.D., Detroit Medical Advisor to Selective Service.
- John W. Cline, M.D., San Francisco, incoming President of the American Medical Association, invited to speak at 1951 MSMS Annual Session in Grand Rapids.
- Silver Anniversary of Woman's Auxiliary to Michigan State Medical Society to be given special recognition in Grand Rapids during MSMS Annual Session; also special features in April, 1951, JMSMS.
- Roster of members, with addresses, to be published in 1951.
- Ralph A. Johnson, M.D., Detroit, elected sixth Delegate to AMA House of Delegates.
- G. B. Saltonstall, M.D., Charlevoix, appointed as Councilor of the Ninth District for term ending September, 1952, taking the place left vacant by resignation of E. A. Oakes, M.D., Manistee.
- A plan of postpayment for medical care of welfare recipients in certain categories presented by L. G. Christian, M.D., Lansing, Chairman of the Michigan Social Welfare Commission, Milton Shaw, M.D., Lansing, Advisor to Social Welfare Commission, Director W. J. Maxey and Miss Ruth Bowen of the Welfare Department.
- Mutual problems, (eleven items), discussed with Michigan Health Commissioner A. E. Heustis, M.D.
- Problem of overutilization of hospital services for non-emergency cases, especially covering Blue Cross-Blue Shield subscribers, was discussed and President C. E. Umphrey, M.D., was instructed to

write every MSMS member and the superintendents of all Michigan's hospitals outlining this problem and explaining the threat to the future of Blue Cross-Blue Shield.

- Michigan's Foremost Family Physician: techniques in the selection of the physician to receive this annual reward were developed by The Council.
- Appointments: Traian Leucutia, M.D., Detroit, to represent MSMS at the Annual Conference of Teachers of Clinical Radiology, Chicago, February 10; L. Fernald Foster, M.D., Bay City, to represent MSMS at the National Conference on Medical Service in Chicago, February 11; J. M. Sheldon, M.D., Ann Arbor, to represent MSMS at the Associated State Postgraduate Committee meeting in Chicago, February 10-11; R. W. Teed, M.D., Ann Arbor, to represent MSMS on the Student American Medical Association advisory council in the University of Michigan, and William Bromme, M.D., Detroit, to represent MSMS on the SAMA advisory council in Wayne University.

SECRETARY'S ANNUAL REPORT—1950

To the Council of the MSMS:

I herewith submit the report of the Secretary for the year 1950.

Membership

The Michigan State Medical Society membership for 1950 showed a total of 5,114 members, including 244 Emeritus and Life members, 27 Retired members and 112 Associate members. The total paid membership was 4,781 with net dues of $73,136.82. The 1950 membership was at the highest peak in the history of the society. The number of members with unpaid dues for 1950 was 68.

MEMBERSHIP RECORD—1950

County Medical Society	PAID		SPECIAL MEMBERS				DEATHS		NET MEMBERSHIP		1950		UNPAID	
	1949	1950	Emer.	Life	Retd.	Assoc.	1949	1950	1949	1950	Gain	Loss	1949	1950
Allegan	20	21	—	3	—	—	—	—	23	24	1	—	—	2
Alpena, Alcona, Presque Isle	21	23	—	2	—	—	—	1	22	24	2	—	—	—
Barry	11	12	—	3	—	—	1	—	12	15	3	—	—	—
Bay, Arenac, Iosco	69	70	3	5	2	—	1	2	77	78	1	—	1	—
Berrien	74	76	1	1	1	1	1	6	75	74	—	1	2	6
Branch	19	22	—	1	—	—	—	—	20	23	3	—	—	—
Calhoun	101	97	—	11	1	7	2	2	109	114	5	—	7	—
Cass	10	10	—	—	—	—	—	—	10	10	—	—	1	1
Chippewa-Mackinac	23	25	1	—	1	—	—	1	24	26	2	—	1	—
Clinton	16	15	—	—	1	—	—	1	16	15	—	1	—	—
Delta-Schoolcraft	22	25	2	—	—	—	—	1	24	26	2	—	3	—
Dickinson-Iron	18	20	—	—	—	1	—	—	18	21	3	—	1	—
Eaton	16	19	—	—	—	—	—	1	16	18	2	—	—	—
Genesee	187	187	3	17	2	—	1	5	201	204	4	—	2	1
Gogebic	19	20	—	—	—	—	—	—	19	20	1	—	—	2
Gd. Traverse, Leelanau, Benzie	46	42	—	—	—	—	—	4	47	38	—	9	2	1
Gratiot, Isabella, Clare	39	37	1	1	—	—	1	1	40	38	—	2	3	—
Hillsdale	19	17	—	3	—	—	1	1	20	19	—	1	2	—
Houghton, Baraga, Keweenaw	28	28	4	2	—	—	2	2	31	32	1	—	—	—
Huron	15	13	—	1	—	—	—	—	16	14	—	2	1	—
Ingham	172	162	1	5	6	1	4	3	174	172	—	2	—	—
Ionia-Montcalm	36	35	—	3	—	—	—	—	39	38	—	1	—	—
Jackson	102	101	5	6	—	1	2	—	108	113	5	—	—	—
Kalamazoo	136	139	3	5	2	—	4	4	143	145	2	—	—	1
Kent	281	274	5	14	2	6	5	5	299	296	—	3	3	9
Lapeer	13	13	3	—	—	—	1	—	15	16	1	—	1	—
Lenawee	41	40	2	1	—	—	2	1	43	42	—	1	1	2
Livingston	18	18	—	—	—	—	—	1	18	17	—	1	2	3
Luce	6	5	2	—	—	—	—	—	7	7	—	—	—	—
Macomb	48	51	—	1	—	—	—	—	49	52	3	—	—	1
Manistee	13	11	1	—	1	—	1	—	13	13	—	—	1	—
Marquette-Alger	42	39	—	2	—	—	1	1	43	40	—	3	—	1
Mason	12	13	—	—	—	—	2	2	10	11	1	—	—	1
Mecosta, Osceola, Lake	15	14	1	1	—	—	—	—	17	16	—	1	—	—
Menominee	17	15	1	—	—	—	—	—	18	16	—	2	—	—
Midland	21	23	—	—	—	—	—	—	21	23	2	—	—	—
Monroe	37	36	2	—	—	—	—	1	39	37	—	2	—	2
Muskegon	94	83	1	4	—	3	4	4	93	87	—	6	3	—
Newaygo	10	10	—	—	—	—	—	—	10	10	—	—	—	—
North Central Counties	20	23	—	—	1	—	1	1	20	23	3	—	—	1
Northern Michigan	32	35	—	—	—	—	1	2	32	33	1	—	1	1
Oakland	184	211	1	4	—	—	2	—	187	216	29	—	3	1
Oceana	8	7	2	—	—	1	1	—	10	10	—	—	—	—
Ontonagon	6	4	—	—	—	—	1	—	5	4	—	1	—	—
Ottawa	34	38	1	1	—	1	—	1	38	40	2	—	—	—
Saginaw	109	114	3	6	3	—	1	1	117	125	8	—	3	1
St. Clair	55	53	2	—	2	—	4	1	51	56	5	—	1	—
St. Joseph	25	24	1	—	—	—	—	—	25	25	—	—	—	2
Sanilac	12	12	—	—	—	—	—	—	12	12	—	—	—	—
Shiawassee	21	23	2	—	—	—	1	1	21	24	3	—	2	1
Tuscola	22	21	1	3	—	—	—	1	23	24	1	—	—	—
Van Buren	21	18	4	—	1	—	—	—	25	23	—	2	—	—
Washtenaw	174	183	3	7	—	87	3	1	226	279	53	—	23	1
Wayne	2,157	2,165	27	42	1	3	34	19	2,179	2,219	40	—	67	25
Wexford-Missaukee	22	17	—	—	—	—	1	—	21	17	—	4	—	2
TOTALS	4,810	4,809	89	155	27	112	86	78	4,971	5,114	189	45	137	68

Deaths During 1950

We regretfully record the deaths of the following seventy-eight members during 1950.

Alpena-Alcona-Presque Isle—George F. Lister, M.D., Hillman.

Bay-Arenac-Iosco—Royston Earle Scrafford, M.D., Bay City, George C. Stewart, M.D., Bay City.

Berrien—F. W. Brown, M.D., Watervliet, Nathanial A. Herring, M.D., Niles, Ralph B. Howard, M.D., Benton Harbor, Harry Kok, M.D., Benton Harbor, William W. Schairer, M.D., Coloma, Theron G. Yeomans, M.D., St. Joseph.

Calhoun—Lydia Jesperson, M.D., Battle Creek, George W. Schlem, M.D., Battle Creek.

Chippewa-Mackinac—James G. Blain, M.D., Sault Ste. Marie.

Clinton—Guy H. Frace, M.D., St. Johns.

Delta-Schoolcraft—Thomas J. Hutton, M.D., Powers.

Eaton—Franklin Wesley Sassaman, M.D., Charlotte.

Genesee—H. L. Marsh, M.D., Flint, C. C. Probert, M.D., Flint, Herbert E. Randall, M.D., Flint, John W. Evers, M.D., Flint, Earle B. Guile, M.D., Flint.

Grand Traverse-Leelanau-Benzie—Jay J. Brownson, M.D., Kingsley, James W. Gauntlett, M.D., Traverse City, Floyd Wayne Clements, M.D., Interlocken, Harry B. Kyselka, M.D., Traverse City.

Gratiot-Isabella-Clare—C. M. Baskerville, M.D., Mt. Pleasant.

Hillsdale—W. E. Alleger, M.D., Pittsford.

Houghton-Baraga-Keeweenaw — Herman L. Sarvela, M.D., Hancock, Percy H. Willson, M.D., Chassell.

Ingham—W. J. Cameron, M.D., Lansing, Hewitt M. Smith, M.D., Lansing, Dana M. Snell, M.D., Lansing.

Kalamazoo—Jerome F. Berry, M.D., Kalamazoo, K. L. Burt, M.D., Kalamazoo, John B. Jackson, M.D., Kalamazoo, Thomas Van Urk, M.D., Kalamazoo.

Kent—Walter P. Keilhorn, M.D., Grandville, John Kremer, M.D., Grand Rapids, Simeon LeRoy, M.D., Grand Rapids, Archibald Blythe Thompson, M.D., Grand Rapids, Llewellyn G. Wedgewood, M.D., Grandville.

Lenawee—F. A. Howland, M.D., Adrian.

Livingston—Edward D. Finch, M.D., Howell.

Marquette-Alger—Nelson J. Robbins, M.D., Negaunee.

Mason—Roy C. Lintner, M.D., Ludington, Robert Redvers Scott, M.D., Scottville.

Monroe—Henry Lehr Meck, M.D., Dundee.

Muskegon—Robert J. Douglas, M.D., Muskegon, Charles T. Eckerman, M.D., Muskegon, Edward O. Foss, M.D., Muskegon, Frank W. Hannum, M.D., Muskegon.

North Central Counties—Robert Jay Beeby, M.D., West Branch.

Northern Michigan—Willis Earle Chapman, M.D., Cheboygan, J. H. R. Gervers, M.D., Bellaire.

Ottawa—William J. Presley, M.D., Grand Haven.

Saginaw—Aaron C. Button, M.D., Saginaw.

St. Clair—A. B. Armsbury, M.D., Marine City.

Shiawassee—Guerdon D. Greenway, M.D., Owosso.

Tuscola—Annie Stevens Rundell, M.D., Vassar.

Washtenaw—John L. Gates, M.D., Ann Arbor.

Wayne—Joseph H. Andries, M.D., Detroit, Charles James Barone, M.D., Highland Park, Frederick G. Buesser, M.D., Detroit, Ralph Dawson, M.D., Detroit, George M. Denis, M.D., Detroit, Myron D. Jacoby, M.D., Detroit, Julius P. Jaeger, M.D., Detroit, Frederick C. Kidner, M.D., Detroit, Martin E. Kohn, M.D., Detroit, P. L. Ledwidge, M.D., Detroit, James A. Moore, M.D., Detroit, George M. Murray, M.D., Detroit, Heinrich A. Reye, M.D., Detroit, Burt R. Shurly, M.D., Detroit, Raymond N. Slate, M.D., Detroit, James A. Smith, M.D., Detroit, Bela T. Szappanyos, M.D., Detroit, Marcus R. Van Baalen, M.D., Detroit, George H. Voelkner, M.D., Detroit.

Journal

The following information relative to THE JOURNAL is found in the annual audit report of Ernst and Ernst:

Income was $56,443.56 which is $1,283.56 over the tentative budget for 1950.

Expenses were $55,432.54 which were $272.54 over the budgetary estimate.

This indicated a net JOURNAL income of $1,011.02.

THE JOURNAL of the Michigan State Medical Society has been published each month under the direction of the Publication Committee of the Michigan State Medical Society. THE JOURNAL has continued to follow the policy, not only of presenting outstanding scientific papers and especially the papers presented at both the Annual Session in September and the Michigan Postgraduate Clinical Institute in March but many manuscripts presented at local societies and others of advanced scientific attainment.

THE JOURNAL has published material to keep the membership informed concerning the socio-economic problems of medicine and has opposed the program for national socialism. The editorial policy has been directed chiefly to that issue.

JMSMS has continued the policy of making the covers really distinctive in that they emphasize some of the major activities of the Society.

Covers have been devoted to Cancer, Tuberculosis, Heart Disease, Michigan Medical Service, Michigan Health Council, Rheumatic Fever and others.

Since 1902, when THE JOURNAL was established, its first and most important function has been to carry to our members matters of special interest to them, both scientific and economic. The Publication Committee has endeavored to continue that program.

Finances

An audit of the books of the Society was completed by Ernst and Ernst, certified public accountants as of December 22, 1950. This has been submitted to the Finance Committee for study and is available to any member of the society for perusal at the Executive office, 2020 Olds Tower, Lansing, Michigan.

A brief summary of the audit produces the following information:

Assets:	
Cash	$ 57,029.69
Accounts Receivable	10,020.19
Securities and Deferred Charges	94,040.10
Total	$161,089.98
Liabilities:	
Accounts Payable	$ 10,133.04
Unearned Income	9,220.00
Reserves	83,468.53
Surplus	58,268.41
Total	$161,089.98

From the Income and Expense statement we find that the total regular income of the Society for 1950 (to December 22) was $76,558.38 with total expenses of $76,093.56 indicating net expenses of $464.82.

A study of the Reserves of the Society as of December 22, 1950, indicates balances as follows:

Public Education (General Activities)	$54,137.07
Public Education (Special Activities)	5,463.91
Rheumatic Fever	23,467.55
Lecture Grant	400.00
Expenses during 1950 were as follows:	
Public Education (General Activities)	$62,237.76
Public Education (Special Activities)	43,436.09
Rheumatic Fever	19,293.58
Lecture Grant	000.00

1950 Annual Session

The 1950 Annual Session held in Detroit in September showed a total registration of 3,044.

The General Assembly type of program with daily dis-

cussion conferences was continued as in recent years and brought to Michigan thirty guest essayists.

The exhibit during this Annual Session was comprised of ninety Technical Exhibitors in ninety-nine spaces.

The policy of bringing to the Scientific Assembly out-of-state essayists of national and international reputation was continued and no expense was spared in making the meetings as interesting and instructive as possible. In spite of the rapidly rising costs of operation a modest gross profit before proration of salaries accrued to the society from the Annual Session.

To the ninety technical exhibitors, the registrants showed their usual appreciation and gave them very generous attention.

1950 House of Delegates

The House of Delegates, transacted the legislative business of the society with as much dispatch as possible consistent with thoughtful deliberation. Some of the highlights of the transactions of the House of Delegates were:

1. Adopted resolution of commendation to newspaper and magazine editors who are fighting socialism, re co-operation with the American Medical Association's National Education Campaign.

2. Eliminated assessment and set the MSMS dues for 1951 at $45.00.

3. Adopted Resolutions concerning:
   (a) Doctors of Medicine to exercise their right of franchise.
   (b) Support of the United Nations.
   (c) Increase in Number of Medical Graduates from Michigan medical schools.
   (d) Additional funds for Wayne University College of Medicine.
   (e) Change in the coroner system.
   (f) Study of nursing needs.
   (g) Development of simplified insurance reporting forms.
   (h) Information to public on atomic disaster.
   (i) Creation of Section on Gastroenterology and Proctology.

4. (a) Elected 11 members to Emeritus Membership.
   (b) Elected 23 members to Life Membership.
   (c) Elected 70 members to Associate Membership.
   (d) Elected 9 members to Retired Membership.
   (e) Elected two members to Honorary Membership.

5. Elected:
   (a) R. S. Breakey, M.D., Lansing, as Councilor of 2nd District (1955).
   (b) G. W. Slagle, M.D., Battle Creek, as Councilor of 3rd District (1955).
   (c) D. Bruce Wiley, M.D., Utica, as Councilor of 15th District (1955).
   (d) W. D. Barrett, M.D., Detroit, as Councilor of 16th District (1955).
   (e) W. D. Barrett, M.D., Detroit (1952), W. H. Huron, M.D., Iron Mountain (1952), R. L. Novy, M.D., Detroit (1952), as Delegates to the American Medical Association.
   (f) R. A. Johnson, M.D., Detroit (1952), R. H. Denham, M.D., Grand Rapids (1952), and C. I. Owen, M.D., Detroit (1952), as Alternate Delegates to the American Medical Association.
   (g) O. O. Beck, M.D., Birmingham, as President Elect.
   (h) R. H. Baker, M.D., Pontiac, as Speaker, House of Delegates.
   (i) J. E. Livesay, M.D., Flint, as Vice-Speaker, House of Delegates.

Michigan Postgraduate Clinical Institute and Heart and Rheumatic Fever Day

This fourth annual scientific institute held under the sponsorship of the Michigan State Medical Society in co-operation with the University of Michigan Medical School and Department of Postgraduate Medical Education, Wayne University College of Medicine, the Michigan Foundation for Medical and Health Education, Inc., and the Wayne County Medical Society was held in Detroit on March 8, 9, 10, 11, 1950.

This Institute designed to provide a high type scientific program, encourage Michigan physicians to prepare presentations and to publicize Michigan as a medical center this year featured twenty-eight Michigan doctors of medicine on the program and sixteen out of Michigan essayists.

The Institute was an outstanding success as evidenced by the fact that it produced a total registration of 1,875 with physicians present from Michigan, all nearby states and Canada.

County Secretaries—Public Relations Conference

A Conference of County Secretaries and other officers and members of component county groups was held in Detroit on January 22, 1950. This all-day conference was attended by over 200, including County Society Officers, County Society Public Relations Committee Chairmen, Members of the Michigan State Medical Society Council, Legislative Commmittee and Public Relations Committee and Officers of the Woman's Auxiliary.

This conference featured techniques of county society organization and operation, an exposition of the major activities of the State Society as related to the County Societies and information necessary for the development and maintenance of good public relations and public education. It featured talks by Congressmen John B. Bennett "England's Dilemma" and Gerald R. Ford "Americanism vs. Socialism" and included instruction in public speaking as related to County Medical Societies and information necessary for the continuation of good public relations and public education programs.

Committees

Limitation of time and space makes it impossible to detail in this report the activities of all the committees contributing to the many splendid programs of the State Society. The accomplishments of the committees of the Society were achieved at the expense of many hours of personal sacrifice on the part of the personnel of the various committees. During 1950 the seventy-one committees of the Michigan State Medical Society held a total of 103 meetings and practically every meeting was attended by one or both of your secretaries or a member of the executive office staff. A total of 630 fellow members in your State Medical Society gave freely of their time to attend these meetings and assist in the operational activities of the State Society. Too much commendation cannot be accorded the committee members who contributed their time and effort to develop and execute constructive programs—both scientific and economic—for the public welfare and to maintain the position of leadership of the Michigan State Medical Society in the field of progressive medical planning. During the year at the request of the AMA there was appointed a central committee on procurement and assignment with similar committees at the county level.

Rheumatic Fever Program

This Society-sponsored program of consultation and diagnosis in the field of Rheumatic Fever demonstrates the voluntary approach in the field of preventive medicine. The Michigan Society for Crippled Children and Adults, Inc., has continued its financial support of this program as has the Michigan Heart Association.

Also this year saw another organization, the Michigan Chapter of the Arthritis and Rheumatism Foundation, take an active financial interest in this Rheumatic Fever program.

We must emphasize that the Rheumatic Fever program is a voluntary effort of the medical profession of this State, aided financially by three other voluntary groups, to demonstrate its ability to conduct successful programs in the field of Public Health; that it is an educational effort both for physicians and the public; that it is being viewed with interest and sometimes envy by other groups and agencies; and that if it fails for lack of support by the individual physicians and county medical societies of the state the medical profession will be open to ridicule and further attempts to bring into the doctors' control the remaining modern procedures of medical practice—(viz. Rheumatism, Arthritis, Cerebral Palsy, Epilepsy, et al) will be impossible.

Contacts with Governmental Agencies

During 1950 your Society maintained active and friendly contacts with many governmental agencies at local county, state and national levels. Included in these contacts were:

The Governor of Michigan
The Michigan Crippled Children Commission
The State Board of Registration in Michigan
The Basic Science Board
The State Department of Public Instruction
The University of Michigan
The Michigan State College
Wayne University
Federal Hospital Survey and Construction Administration
The U.S. Senators and Congressmen from Michigan
The State Health Commissioner
The Michigan Mental Health Commission

Contacts with Non-Governmental Agencies

During 1950 the usual active contacts were maintained with many non-governmental agencies—especially

Michigan Medical Service (See recommendation No. 4)
Michigan Hospital Service (See recommendation No. 4)
Michigan Society for Crippled Children and Adults, Inc.
Michigan Health Council
The State Associations of
Nursing
Pharmacy
Dentistry
The State Tuberculosis Association
The Michigan Foundation for Medical and Health Education
The Michigan Heart Association
The Rural Health Conference and its 49 other groups
The National Foundation for Infantile Paralysis

National Associations contacted in various ways during the past year were:

American Cancer Society
American Red Cross—Particularly in connection with the Blood Bank Program
National Conference on Medical Service
Conference of Presidents and Other Officers of State Medical Associations
Associated State Postgraduate Committee

Society Activities

Many contacts were made during the year with members of the Society at Councilor District Meetings and County Society Meetings. These contacts were made by various members of the administrative personnel and were designed to publicize the various activities of the State Society and to allow a discussion of any question propounded by the members present. These meetings developed a critical discussion of the problems of the local and State organizations, problems of the public relations, the "dispractices" of medicine and other subjects bearing upon the development and maintenance of activities necessary to the establishment of medical practice on its deserving high plane.

Officers attended numerous Michigan county and district medical society meetings during the year and were honored by being invited to speak before state and county medical societies in other states. Their presentations before lay and civic organizations during the past twelve months—particularly after the inauguration of the "Get Out The Vote Campaign" totaled hundreds of appearances, with messages beamed to the theme that voluntary medicine has achieved the best results for the people's benefit and is to be preferred to a compulsory federally operated type of political foreign medicine.

Especially to be commended are the high quality scientific postgraduate "clinic days" being offered by county and district medical societies annually including: Bay, Calhoun, Grand Traverse, Genesee, Ingham, Jackson, Kent, St. Clair, and Wayne Counties and by the Upper Peninsula Medical Society.

Secretary's Letters

As part of the Society's general educational program for individual members and component County Societies there were issued during the year 1950, eleven Secretary's Letters, six to county secretaries and keymen and five to all members of the Michigan State Medical Society.

Office Personnel

During 1950 the Executive Office Personnel has discharged its many duties with extra loyalty and untiring effort.

The still-existing crowded and scattered condition of our Executive Offices is working an ever-increasing hardship on the whole office personnel and is not conducive to good morale and the greatest efficiency.

Public Relations

The public relations activity in the field of media communication of the Michigan State Medical Society is based on a concept that should be clearly understood. It is this: That proper development of the scientific information in the possession of the Michigan State Medical Society makes the value of this information such that it can be bartered for communication services of great value.

"Proper development" consists of translating and transforming the scientific information into radio programs, newspaper releases, television shows, motion pictures, etc., which will be interesting to the general public.

In any contemplation of the attached balance sheet* it is most important to keep in mind the fact that the figures indicated (with the exception of motion pictures) are for one year (1950) only. Using the past year as an example it is simple to see the enormous public relations values which will continue to accrue from monies expended months—and in the case of films, years ago.

For example: The production of the two MSMS films by a commercial film company resulted in the expenditure of $30,339.00 of medical society funds. This money was for the purpose of writing, casting, producing and distributing two films and was a "package deal" for the MSMS. The MSMS through an agreement with

*See Exhibit A.

the producers and themselves agreed to sell the rights for the film "To Your Health" to any of the several state medical societies so desiring rights for their particular states. As a result of this arrangement the MSMS has already recaptured $1,980.00 of original investment in the pictures.

A further projection of the motion pictures already produced shows that the MSMS can reasonably expect to receive at least $50,250.00 in direct benefits through the guarantee of the producers of the film that each of the two films would be shown in at least 400 theaters. Add to this another 150 theaters which could be expected to show the films during this or another year and you add another $22,550. Also keep in mind that other states may wish to purchase rights for the pictures thus reducing still further the original investment in motion picture public relations.

In consideration of the above the investment of $28,-359.00 in two 10-minute moving pictures the Michigan State Medical Society stands well to realizing a good will return of more than $152,550.00.

The above illustration of the possibilities in just one media of public relations brings to the front the excellent spirit of co-operation and co-ordination which has been engendered through the years between the medical profession and the professions allied with public relations media.

A famous definition of public relations says it is "doing a good job and then telling others about it." The medical profession in Michigan has done just that and in the tangible results of their efforts to make Michigan a healthier place in which to live have gained the confidence and trust of those whose job is "tell"—by print, the airlanes or films—of that progress.

Because the doctors of medicine in Michigan have pioneered in good public relations they today have tremendous strength of accomplishment and purpose with which to trade for the services of the editors, announcers and producers.

It was no secret that the medical profession in 1950 continued to do battle in the idealogical conflict which can mean life or death for a way of life that is summed up in a single word—American. Michigan's doctors of medicine did fight and win a great battle—the Good Citizenship Campaign.

Carried on as the focal point of the CAP (Co-operation with the American People) program the efforts to increase the activity and interests coincident with good citizenship made newsworthy headlines.

Here are some highlights of 1950's great campaign by Michigan's doctors of medicine:

On May 7, 1950, the Good Citizenship Campaign was launched. Medical representatives from every area of the state gathered to pool their efforts to plan and implement a program designed to get out the vote and to halt the epidemic of socialism that was spreading in Michigan. Each representative returned to his local area and carried the message of "Here's how it can be done." CAP Committees from each of the 55 county medical societies and from the Woman's Auxiliaries went to work to get people registered and then get out the vote. Reports showed that 97.4% of the doctors of medicine, 97.3% of their wives, and 90.4% of their medical assistants registered. "Lists of 20" were combed carefully to see that the 100,000 persons represented in these lists were registered. Headquarters personnel of 40 statewide business and professional organizations were individually contacted and urged to participate in the campaign. Each in its own way—by letters, bulletins, journals, special meetings, etc.—alerted its members. Supplies went out to their local groups—advertisements, counter display cards, imprinted napkin, window displays, reminder-to-vote cards, announcements, radio broadcast scripts, ideas for local promotion, etc. Many of these were originated by the MSMS office and turned over to these other organizations. The MSMS itself sent between 250,000 and 300,000 letters, postcards, etc.

Also included in the MSMS Statewide campaign were radio and television programs, the advertising campaign of the American Medical Association (involving a paid ad by the AMA) in every Michigan newspaper, tie-in ads by scores of other groups, and paid radio spot announcements on 26 radio stations, an active speakers' bureau that supplied speakers on every occasion requested. A final fighting speech outlining the stand of the MSMS in the election was presented over Radio Station WJR, Detroit.

Many county medical societies levied special local assessments to help in defraying the expenses of their efforts to "Get Out the Vote."

County Woman's Auxiliaries developed meetings of women's groups, carried on telephone campaigns, wrote thousands of letters.

On Election Day, house-to-house canvasses, phone committees, motor pools and 134,210 reminders-to-vote cards brought thousands of extra voters to the polls.

In addition to the above efforts, all of which were nonpartisan, many doctors and their wives—as individuals—joined in active work locally for one party or the other and campaigned vigorously. There is no way of knowing the total extent of this effort but the fact that activity by M.D.s was present in every section, city and hamlet of the state was obvious.

A record-breaking turnout at the Primary polls in September gave encouragement and the campaign was stepped up prior to the General Election on November 7.

On General election day the largest turnout of voters ever to go to the polls in a non-presidential election was recorded in Michigan.

In addition to its main force directed into the "Good Citizenship Campaign," the following CAP activities can be noted:

(a) Over 105,000 Michigan citizens have written personal letters or wired their Congressional representatives.

(b) Some 331 Michigan organizations have passed resolutions concerning socialized medicine.

(c) MSMS members have made over 1,753 speeches and talks to medical and lay audiences.

(d) Campaign materials totaling 3,684,750 have been distributed to doctors of medicine and citizens of Michigan.

(e) The Public Relations Field Secretaries (3) made personal calls on 1,592 doctors of medicine and lay persons, attended 352 meetings, organized 104 meetings, gave 319 speeches, traveled more than 60,163 miles in the performance of their assignments.

(f) Four CAP Bulletins totaling more than 20,000 copies were prepared and mailed to all MSMS members.

(g) Five legislative bulletins (5,105 copies) were mailed to key leaders.

(h) Seventeen District CAP meetings were held with innumerable County CAP Committee meetings called on the county level.

(i) Four large Conferences were organized and held, while MSMS representatives were active participants in eight national meetings.

(j) Hundreds of local meetings were held with ancillary groups interested in health problems.

(k) Aid and assistance were given numerous state and county medical societies throughout the United States.

(1) Four new MSMS publications were authorized and printed in the amount of 195,000 copies. The Speakers Manual, a 108-page compendium of information relative to speaking on socialized medicine, was sent to all state medical societies as well as to several thousand Michigan doctors and lay speakers.

Meanwhile the general public relations activity of the medical profession in Michigan continued. The "Tell Me, Doctor" program, nationally recognized as the only daily medical radio program in the United States, passed its 1,200th Broadcast. The two motion pictures developed by the MSMS—"Lucky Junior" and "To Your Health" were exhibited in 245 and 220 theaters, respectively. Rights to the latter named picture were sold to seven other state medical societies in the United

States for showing in theaters and loaned for showing to hundreds of small groups.

The Michigan Health Survey was completed and copies sent to 5,000 M.D. in Michigan. A weekly twenty-minute television program, "It's Your Life" over WXYZ-TV and other television stations in Michigan was developed. Support was given the Michigan Health

Where Do We Go From Here?

No question remains about the victory gained against socialism in the last election. It was definite if not complete. Across the country many of those whose names were closely linked with socialistic-sided legislation were removed from office.

PUBLIC RELATIONS BALANCE SHEET (1950)

PROGRAM	COST TO MSMS	SERVICES RENDERED	MONETARY VALUE OF SERVICES	TOTAL MONETARY VALUE OF PROGRAM
(*Radio*) "Tell Me Doctor"	$23,465.00	5-minute radio show 6 times weekly on average of $11.00 daily charge per station.	$89,232.00	
W.J.I.M.	None	15-minute sponsored show each Sunday (Average cost $22)	1,144.00	
U. of M. Weekly Series	None	30-minute weekly show over average of 5 stations in state. (Average cost $50)	13,000.00	
				$126,841.00
(*Television*) "It's Your Life"	None	½-hour TV show each week at cost of $700 weekly	$36,400.00	
Bud Lanker Show	None	½-hour TV Show at present under consideration. Cost approx. as above.	36,400.00	
				36,400.00
(*Newspaper space*) Being space devoted to news of MSMS	$ 320.37	News articles appearing in state papers. Approx. 450 clippings monthly x average of 10 inches per clipping x average open space rate of $3.36 per inch.	$181,440.00	
				181,760.37
(*Motion Pictures*)* "Lucky Junior" & "To Your Health"	$28,359.00	465 showings of two, 10-minute films $150 charge based on $15 per minute commercial rate charged in theaters.	$69,750.00	
				98,109.00
GRAND TOTAL				$449,110.37

*It is important to note that the grand total does not reflect the "Bud Lanker TV Show" as indicated above nor does it show the monetary values of the various exhibits at fairs, expositions, state and national magazine articles and the tie-in advertising coincident with the recent AMA national advertising campaign.

Council in its development of twenty-seven new Community Health Councils. A national conference on M.D.s' participation in Health Councils was held in Detroit, October 1, jointly sponsored by the AMA and the MSMS. The Michigan Rural Health Conference was held at Michigan State College, East Lansing, powerfully backed by the MSMS. Outstanding publicity was obtained in connection with the MSMS Annual Session and the Michigan Postgraduate Clinical Institute. During the 1950 Annual Session, in addition to hundreds of inches of newspaper space, 14 presentations were made over radio and television and before service clubs in the Wayne County area.

Recognition in national lay publications of the United States has been given the MSMS public relations program as well as in the professional public relations journals.

Too often but a few persons are credited with the success of a program such as that outlined above. Although there are a few persons under whose direction the program is carried out, yet the extent and success of the entire effort is due to the unswerving devotion of the entire membership of the MSMS to the principles that have made American Medicine great. From this devotion has come a united effort, only partially reflected in the statistics above, that will keep America great—and free.

But certain things were obvious. These were: That the proponents of socialism in America are prepared and committed to continue their efforts and that huge resources to influence public opinion are at their command;

That, upon the progress made in the next eighteen months, by either side, depends the fate of America; and that only if we falter and stumble in our new found strength will those who gave their time during this past year be betrayed.

Where do we go from here? That's up to you!

Foremost Family Physician Award

The fourth annual "Foremost Family Physician Award" was accorded Lunette I. Powers, M.D., of Muskegon, Michigan. The award will be officially made in March, 1951, on the occasion of the Michigan Postgraduate Clinical Institute.

Recommendations

As a result of a careful analysis of the Society's activities, the prospective economic conditions and the attitude of the public toward medical organizations, I respectfully submit the following recommendations for your consideration: That

1. Efforts be put forth to develop and maintain strong organizations (County Medical Societies) at the grass-roots level.
2. A cohesive organization be maintained at the State and County levels for the execution of effective Civil Defense programs.
3. The Medical organizations begin now the further development and continuation of the Good Citizenship Campaign for 1952.
4. The Medical profession give full co-operation to Blue Cross and Blue Shield in conducting informative meetings with lay groups throughout the state.
5. The Public Relations department revitalize the subject of Medical Associates in the light of the present national emergency.
6. The 1952 Secretaries' and Public Relations Conference be a school of instruction and training for Co-Medical Society Officers, and for Auxiliary Members, Medical Assistants and other key persons in the medical groups.

Your Secretary desires to express to the members of The Council his sincere appreciation for their fine personal and collective co-operation and the encouragement they have accorded him during 1950.

To the Executive Office personnel, to Mr. H. W. Brenneman, Public Relations Counsel, and assistant counsel Russell F. Staudacher, Mr. J. Joseph Herbert, Legal Counsel, and to Dr. Wilfrid Haughey, Editor, and Mr. Robert Roney, Assistant Executive Director, your Secretary is particularly grateful for their loyalty, willing application to their many tasks and many constructive suggestions. To Executive Director Mr. Wm. J. Burns, I wish to express a special appreciation for his wise counsel, helpful co-operation, and dynamic inspiration.

To all those who have aided so generously in the discharge of the duties of his office, your Secretary is most grateful.

Respectfully submitted,

L. FERNALD FOSTER, M.D.
Secretary

TREASURER'S ANNUAL REPORT—1950

SECURITIES IN POSSESSION OF TREASURER
January 1, 1951

Description	Interest Rate	Maturity	Interest Paid to	Principal Amount	Cost	Market or Redemp. Prices 12-22-50	Market or Redemp. Prices 12-23-49	Income For Period
Bonds held for general purposes:								
United States Savings Bonds, Series G.....	2½%	6- 1-56	12- 1-50	$ 5,000.00	$ 5,000.00	$ 4,790.00	$ 4,760.00	$ 125.00
United States Savings Bonds, Series G.....	2½%	2- 1-57	8- 1-50	17,600.00	17,600.00	16,755.20	16,667.20	440.00
United States Savings Bonds, Series G.....	2½%	6- 1-57	12- 1-50	5,000.00	5,000.00	4,760.00	4,735.00	125.00
United States Savings Bonds, Series G.....	2½%	12- 1-57	12- 1-50	1,000.00	1,000.00	949.00	947.00	25.00
United States Savings Bonds, Series G.....	2½%	5- 1-58	11- 1-50	5,000.00	5,000.00	4,735.00	4,740.00	125.00
United States Savings Bonds, Series G.....	2½%	3- 1-60	9- 1-50	5,000.00	5,000.00	4,780.00	4,845.00	125.00
United States Savings Bonds, Series F.....	Note A	5- 1-53		2,500.00	2,285.00	2,285.00	2,217.50	67.50
United States Savings Bonds, Series F.....	Note A	7- 1-53		700.00	630.00	630.00	611.80	18.20
United States Savings Bonds, Series F.....	Note A	9- 1-53		500.00	450.00	450.00	437.00	13.00
United States Savings Bonds, Series F.....	Note A	12- 1-61		12,400.00	9,200.80	9,200.80	9,176.00	24.80
United States Savings Bonds, Series F.....	Note A	6- 1-62		6,000.00	4,440.00	4,440.00	Note B	
United States Treasury Bonds.....	2½%	12-15-72/67	12-15-50	8,000.00	8,218.09	8,055.00	8,302.50	187.17-C
Bonds held for Public Education Program:								
United States Savings Bonds, Series G.....	2½%	8- 1-58	8- 1-50	30,000.00	30,000.00	28,410.00	28,530.00	750.00
				$98,700.00	$93,823.89	$90,240.00	$85,969.00	$ 2,025.67

Note A—Bonds purchased on discount basis. They do not bear interest.

Note B—Bonds purchased in 1950.
Note C—Interest income after amortization of premium paid on purchase.

The changes in bonds during the year were as follows:

Balance at January 1, 1950 (stated at cost)		$89,273.22
ADDITIONS		
Purchase of United States Savings Bonds, Series F, maturing June 1, 1962 (Principal amount $6,000.00)	$4,440.00	
Increase in redemption value of United States Savings Bonds acquired in prior years	$123.50	
Less amortization of Bond Premium	12.83	
	$ 110.67	
		$ 4,550.67
BALANCE AT DECEMBER 22, 1950		$93,823.89

REPRESENTED BY—

Bonds for general purposes	$63,823.89	
Bonds designated for Public Education Program	$30,000.00	
		$93,823.89

INCOME

Cash Balance in Bank, at January 1, 1950	$ 5,128.13
Earnings on Bonds, (Jan. 1, 1950 to Jan. 1, 1951)	$ 1,915.00
TOTAL	$ 7,043.13

EXPENSE

Bank Charge, for safe-keeping of Bonds	$ 46.74	
Cost of purchasing United States Savings Bonds, Series F	$4,440.00	
TOTAL EXPENSE		$ 4,486.74
CASH BALANCE IN BANK (Jan. 1, 1951)		$ 2,556.39
CASH IN BANK (January 1, 1951)	$ 2,556.39	
MARKET, OR REDEMPTION PRICES OF ALL BONDS, (as of Jan. 1, 1951)	$90,240.00	
		$92,796.39

The actual cost of these bonds is $93,823.89, which includes the purchase price of interest-bearing bonds—and purchase price of bonds bought on a discount basis, plus adjusted increase in value of the latter group.

Respectfully submitted,
A. S. BRUNK, M.D., Treasurer

EDITOR'S ANNUAL REPORT—1950

THE JOURNAL of the Michigan State Medical Society has completed forty-nine years of uninterrupted publication and has issued 588 numbers. It has been published continuously under the instruction of the Council and Publication Committee and has throughout its existence maintained a high standard of scientific material together with the very important general interest material necessary in a public service organization. Probably about one-third of THE JOURNAL space outside of advertising has been devoted one way or another to general interest material, editorials, news, committee reports, etc.

In its early years, THE JOURNAL ran from 80 to 100 pages per month, but in the last nine years the pages outside of the cover have numbered: 1942—1090; 1943—1022; 1944—1134; 1945—1414; 1946—1692; 1947—1478; 1948—1446; 1949—1566; 1950—1526. We are now averaging about 1500 pages per year. During the past year, 1950, we have continued the policy of trying to express to our membership the constructive thinking and programs outlined by our hardworking committees and the Council both editorially, and by selected items, news and reports. One hundred and twenty-nine original articles were used. Some papers had two or more authors so that 171 authors appeared in our pages last year. There were twelve repeats. Ninety-six death notices were published. Some of them included a number of very active society workers whose loss we shall regret as long as memory lasts. We published fifty-four editorials and sixty-two book reviews.

During the year, we have continued the policy of making the covers and the contents of the Journal so far as possible significant of the various major activities of the Society and its committees or sponsored groups.

January—The Postgraduate Institute had pictures of the outstanding speakers who came to Michigan to give us results of their attainments.

February—This number memorialized the Easter Seal Campaign for Crippled Children.

March—The Cancer Number listed the Cancer alphabet.

April—The Public Relations Number showed increasing benefits.

May—This number was a memorial to the University of Michigan Medical School Centennial with pictures of six of the organizing professors of Medicine. It was also a salute to our foremost family physician, Dr. John C. Maxwell.

June—10th Anniversary of Michigan Medical Service.

July—The Roster Number with the map of Michigan showing the number of members in each county organization.

August—Annual Session Number, showing all roads leading to Detroit.

September—Rheumatism and Arthritis Number. Two groups of hands. One Arthritic, the other the prayerful hands of the artist.

October—Michigan Foundation for Medical and Health Education, with pictures of certain outstanding officers and members.

November—Michigan Health Council.

December—The Heart Number. Two Hearts. The Michigan Heart Association, representing the heart of the people and the heart of medicine.

The outlines for 1951, which is our semi-centennial year, will again represent the many activities of Michigan medicine.

Respectfully submitted,

WILFRID HAUGHEY, M.D.
Editor

ERNST & ERNST REPORT

Executive Committee of the Council,
Michigan State Medical Society,
Lansing, Michigan.

We have examined the balance sheet of Michigan State Medical Society as of December 22, 1950, and the related statements of income and expense, surplus, and changes in reserves for the period from December 24, 1949, to December 22, 1950. Our examination was made in accordance with generally accepted auditing standards, and accordingly included such tests of the accounting records and such other auditing procedures as we considered necessary in the circumstances.

In our opinion, the accompanying balance sheet and statements of income and expense and changes in reserves present fairly the financial position of the Michigan State Medical Society at December 22, 1950, and its income and expense for the period from December 24, 1949, to December 22, 1950, in conformity with generally accepted accounting principles applied on a basis consistent with that of the preceding fiscal period.

January 11, 1951

ERNST & ERNST
Certified Public Accountants

BALANCE SHEET
December 22, 1950

ASSETS

Cash		
Demand deposits	$39,940.95	
Cash for deposit	2,077.13	
Office cash fund	11.61	
Savings deposits	15,000.00	$ 57,029.69
Accounts Receivable		
Advertising	$ 4,445.19	
Space at 1951 Postgraduate Clinical Conference	5,875.00	
	$10,320.19	
Less allowance for losses in collection	300.00	10,020.19
United States Government Securities (aggregate market or redemption price—$90,240.00)—Note A		93,823.89
Deferred Charges		
Expenses of 1951 Postgraduate Clinical Conference		216.21
		$161,089.98

LIABILITIES

Accounts Payable			
Current expenses and miscellaneous liabilities		$ 9,933.22	
Pay roll taxes		199.82	$ 10,133.04
Unearned Income			
Sales of space for 1951 Postgraduate Clinical Conference			9,220.00
Reserves—for unexpended funds received for special purposes			
Public Education Program:			
General activities	$54,137.07		
Special activity	5,463.91	$59,600.98	
Rheumatic Fever Control Program		23,467.55	
Lecture Grant		400.00	83,468.53
Surplus			
Balance at December 24, 1949		$57,803.59	
Net income for the period from December 24, 1949, to December 22, 1950		464.82	58,268.41
			$161,089.98

Note A—United States Government Bonds in the amount of $30,000.00 have been designated as applicable to the reserve for Public Education Program.

INCOME AND EXPENSE

From December 24, 1949, to December 22, 1950

Income:		
Membership fees	$80,421.50	
Less portion allocated to income of THE JOURNAL for subscriptionss	7,103.56	$ 73,317.94
Income from THE JOURNAL		1,011.02
Interest:		
On securities	$ 2,025.67	
On savings deposits	148.36	2,174.03
Miscellaneous income		55.39
TOTAL INCOME		$ 76,558.38
Expenses:		
Administrative and general	$36,305.29	
Society activities	16,867.48	
Committee expenses	20,481.61	
Annual and special sessions	2,439.18	76,093.56
NET INCOME		$ 464.82

Comments

The Michigan State Medical Society was organized on September 17, 1910, under the laws of the State of Michigan as a non-profit corporation. The charter has been extended for a period of thirty years from September 17, 1940. The Society is affiliated with the American Medical Association and it charters county medical societies within the State of Michigan. The purposes of the Society are the promotion of the science and art of medicine, the protection of the public health, and the betterment of the medical profession. In the furtherance of these purposes, the Society publishes "The Journal of the Michigan State Medical Society."

The balance sheets at December 22, 1950, are summarized as follows:

ASSETS

December 22, 1950

Cash	$ 57,029.69
Accounts receivable	10,020.19
Securities	93,823.89
Deferred charges	216.21
	$161,089.98

LIABILITIES

Accounts payable	$ 10,133.04
Unearned income	9,220.00
Reserves for unexpended funds received for special purposes	83,468.53
Surplus	58,268.41
	$161,089.98

Schedules included hereinafter show in greater detail the income from "The Journal" and the expenses of the Society.

Accounts receivable for advertising were classified as to period of charge and are summarized as follows:

PERIOD OF CHARGE

	December 22, 1950 Amount	Per Cent
October, November, and December	$4,141.61	93.17%
July, August, and September	65.62	1.48
January to June, inclusive	53.71	1.21
Prior to January	184.25	4.14
TOTAL	$4,445.19	100.00%

Our examination of accounts receivable as of December 22, 1950, included tests of the balances by communication with selected debtors. It is our opinion that the allowance of $300.00 is a reasonable provision for losses in collection of the accounts.

The changes in bonds owned during the period were as follows:

Balance at December 24, 1949			$89,273.22
ADDITIONS			
Purchase of United States Savings Bonds, Series F, maturing June 1, 1962	$4,440.00		
Increase in redemption value of United States Savings Bonds acquired in prior years	$123.50		
Less amortization of bond premium	12.83	110.67	4,550.67
Balance at December 22, 1950 (of which bonds in the amount of $30,000.00 have been designated for the Public Education Program)			$ 93,823.89

Bonds owned at December 22, 1950, have been stated at cost, adjusted for increases in redemption price of United States Savings Bonds, Series F, and less amortization of premiums paid. We inspected the bonds and accounted for the income from them for the period. At December 22, 1950, the aggregate carrying amount of the bonds owned was $3,583.89 greater than the aggregate market or redemption prices. Details of the bonds are shown in a schedule in this report.

During the period the Society received $112,800.00 from county medical societies representing collections of assessments levied by the American Medical Association on its members. All such collections were remitted to the American Medical Association and the amounts do not appear in the Society's financial statements.

EXPENSES

From December 24, 1949, to December 22, 1950

Administrative and general:	
Salaries—administrative	$ 7,133.18
Salaries—office	7,487.67
General counsel	4,190.43
Office rent and light	1,633.95
Printing	66.85
Stationery and supplies	2,719.35
Postage	1,149.76
Insurance and fidelity bonds	3,701.96
Audit	732.50
New equipment and repairs	988.99
Telephone and telegraph	3,161.61
Pay roll taxes	1,211.88
Provision for doubtful accounts	232.50
Miscellaneous	1,894.66
TOTAL	$36,305.29
Society activities:	
Council expense	$ 9,066.38
Delegates to American Medical Association	2,840.65
General society travel	1,593.30
Officers' travel expense	1,807.93
Secretary's letter	1,259.22
Woman's Auxiliary—annual meeting	300.00
Sundry society expense	
TOTAL	$16,867.48
Committee expenses:	
Cancer	$ 3,000.00
Child welfare	12.70
Legislative	1,438.04
Postgraduate medical education	3,873.62
Preventive medicine	69.32
Geriatrics	64.09
Industrial hygiene	352.48
Maternal health	634.94
Mental hygiene	276.52
Scientific radio	66.54
Venereal disease control	138.49
Tuberculosis control	74.87
Michigan Health Council	7,500.00
Sundry other	2,980.00
TOTAL	$20,481.61
Annual and special sessions:	
Annual session:	
Scientific meeting	$ 3,067.21
Exhibit	2,796.90
Projection expense	182.50
Officers' night and Biddle oration	794.48
Press	922.61
Printing, mailing, and postage	2,960.72
Registration	280.86
Salaries	3,750.00
State society night	3,190.63
Hotel expense	573.57
House of Delegates expense	827.75
Miscellaneous	532.78
	$19,880.01
Postgraduate Clinical Institute:	
Salaries	$ 2,150.04
Scientific meeting	1,543.10
Committee meetings	145.28
Printing, mailing, and postage	2,024.83
Exhibits	1,726.63
Press	808.28
Registration	70.01
Hotel expense	359.37
Miscellaneous	671.63
	$ 9,499.17
	$29,379.18

Less sales of display space:		
Annual session		$17,940.00
Postgraduate Clinical Institute		9,000.00
		$26,940.00
NET TOTAL		$ 2,439.18

THE JOURNAL

From December 24, 1949, to December 22, 1950

Income:		
Subscriptions from members		$ 7,103.56
Other subscriptions		468.68
Advertising sales		45,447.60
Reprint sales and cuts		3,423.72
		$56,443.56
Expenses:		
Salaries		$10,293.25
Editor's expense		1,800.00
Printing and mailing		30,855.44
Cost of reprints and cuts		2,083.03
Discounts and commissions on advertising sales		10,224.60
Miscellaneous		176.22
		$55,432.54
NET INCOME		$ 1,011.02

Note: The deficit was financed from reserves.

RHEUMATIC FEVER CONTROL PROGRAM

From December 24, 1949, to December 22, 1950

INCOME

Grant from Michigan Heart Association	$11,623.16
Grant from Michigan Chapter—Arthritis and Rheumatism Foundation	2,250.00
TOTAL INCOME	$13,873.16

EXPENSES

Expenses of central office:		
Salaries—administrative		$ 8,000.00
Salaries—general		650.04
Equipment and supplies		192.55
Committee meetings		365.82
Pay roll taxes		110.60
Publications and pamphlets		33.75
Travel		958.62
Printing, stationery, and supplies		897.04
		$11,208.42
Expenses of local consultation and diagnostic centers—advances and expenses:		
Alpena	$	
Ann Arbor		200.00
Battle Creek		
Bay City		500.00
Flint		
Grand Rapids		2,500.00
Jackson		
Kalamazoo		800.00
Lansing		307.20
Marquette		1,000.00
Muskegon		
Pontiac		
Port Huron		
Saginaw		600.00
St. Joseph-Benton Harbor		
Traverse City		1,000.00
Detroit (Wayne County)		1,177.96
		$ 8,085.16
TOTAL EXPENSES		$19,293.58

NOTE: The deficit was financed from Reserves.

CASH

December 22, 1950

Demand Deposits:		
Michigan National Bank, Lansing—general account	$37,384.56	
The Detroit Bank—Treasurer's account	2,556.39	$39,940.95
Cash for deposit		2,077.13
Office change fund		11.61
Savings Deposits:		
The Detroit Bank	$ 5,000.00	
The Manufacturers National Bank of Detroit	5,000.00	
Wabeek State Bank of Detroit	5,000.00	15,000.00
TOTAL		$57,029.69

PUBLIC EDUCATION PROGRAM—GENERAL ACTIVITIES

From December 24, 1949, to December 22, 1950

INCOME

Assessment of members	$79,155.71
Sales of movie rights	1,980.50
TOTAL INCOME	$81,136.21

EXPENSES

Salaries	$17,663.09
Rent and light	916.65
Telephone and telegraph	1,749.38
Printing	1,365.57
Stationery and supplies	734.91
Postage	825.85
Office equipment and repairs	294.34
Travel	1,815.70
Public relations and secretaries' conference	3,400.59
Publications and pamphlets	398.20
Committee meetings	1,354.01
Newspaper advertising	744.29
Radio and television	23,465.24
Cinema	2,975.83
National meeting expense	1,888.46
Clipping service	252.37
Miscellaneous	2,393.28
TOTAL EXPENSES	$62,237.76

PUBLIC EDUCATION RESERVE ACCOUNT

From December 24, 1949, to December 22, 1950

Income from assessment of members	$15,645.54

EXPENSES

Salaries	$21,699.44
Printing	8,388.66
Stationery and supplies	669.38
Postage	2,749.83
Telephone and telegraph	2,173.55
Travel	5,247.67
Office equipment	52.61
Publications and pamphlets	111.63
Meeting expenses:	
Special committee on education	553.59
Field secretaries	16.00
County societies and other meetings	1,729.23
Miscellaneous	44.50
TOTAL EXPENSES	$43,436.09

NOTE: The deficit was financed from Reserves.

MSMS BUDGETS—1951

GENERAL FUND

INCOME:		
4400 Members @ $45.00		$198,000.00
Less Allocation to THE JOURNAL @ $1.50		6,600.00
Less Allocation to Public Education @ $20.00		88,000.00
Less Allocation of $2.00 to Building Fund		8,800.00
Less Allocation of $1.50 to Contingent Fund (surplus)		6,600.00
General Fund 4400 members @ $20.00		$ 88,000.00
Income from THE JOURNAL		—0—
Interest Income		2,200.00
Miscellaneous Income		50.00
		$90,250.00
TOTAL INCOME:		
EXPENSES:		
Administrative & General:		
Office Rent & Light		$ 2,750.00
Contingent Fund Office Rent		1,088.00
Printing & Mailing		1,200.00
Provision for Doubtful Accts.		
Office Supplies		3,000.00
Postage		2,500.00
Insurance & Fidelity Bonds		3,800.00
Auditing		730.00
Administrative Salaries		7,500.00
General Office Salaries		10,346.00
General Counsel Retainer		3,960.00
General Counsel Expense		600.00
Equipment & Repairs		1,000.00
Telephone & Telegraph		3,000.00
Payroll Taxes		1,500.00
Miscellaneous Expenses		900.00
Total Administrative & General		$ 43,874.00

Society Activity:	
Council Expense	$ 8,000.00
Delegates to AMA (six)	3,500.00
General Society Travel & Entertainment	2,750.00
National Conf. Medical Service	250.00
Secretary's Letters	1,200.00
Woman's Auxiliary	500.00
Sundry Society Expense	300.00
Officers' Travel	3,000.00
Total Society Activity	$ 19,500.00
Annual Session (gain or loss)	—0—
Postgraduate Institute	—0—
Total Society Expenses	$ 19,500.00
Committee Expenses:	
Legislative & Legislative Advisory Committee	$ 2,200.00
Postgraduate Medical Education	5,000.00
Preventive Medicine	100.00
Cancer Control	5,000.00
Child Welfare	150.00
Geriatrics	150.00
Industrial Health & Industrial Health Day	500.00
Maternal Health (Incl. $500 for Survey)	700.00
Mental Hygiene	950.00
Scientific Radio	75.00
Venereal Disease Control	150.00
Tuberculosis Control	150.00
Distribution of Medical Care	150.00
Michigan Health Council	7,500.00
Rural Medical Service Comm.	250.00
Emergency Medical Service	500.00
Atomic & Allied Procedures	150.00
Committees of House of Delegates and of The Council	3,201.00
Total Committee Expense	$ 26,876.00
TOTAL EXPENSES	90,250.00
GAIN OR LOSS FOR YEAR	—0—

THE JOURNAL

INCOME:	
4400 Members @ $1.50	$ 6,600.00
Subscriptions, Others	400.00
Advertising Sales	45,000.00
Reprint & Cut Sales	3,400.00
Total Income:	$ 55,400.00
EXPENSES:	
Editor's Expense	$ 1,800.00
Printing & Mailing	30,000.00
Reprint & Cut Expense	2,100.00
Salaries	10,840.00
Disc. & Commissions on Advertising Sales	10,200.00
Miscellaneous Journal Expense	460.00
Total Expenses	$ 55,400.00
GAIN OR LOSS FOR YEAR	—0—

1951 ANNUAL SESSION

INCOME:	
Booth Sales (100 spaces)	$ 16,300.00
EXPENSES:	
Scientific Meeting	$ 3,000.00
Registration	250.00
Exhibit Expense	2,000.00
Hotel Expense (MSMS Staff)	500.00
Officer's Night & Biddle Lecture	500.00
State Society Night	2,000.00
Printing, Mailing & Postage	1,935.00
Press Expense	500.00
Projection Expense	90.00
Committee on Scientific Work	175.00
Salaries	4,300.00
House of Delegates Expense	850.00
Miscellaneous Expense	200.00
Speakers' Conference	—0—
Total Expenses:	$ 16,300.00
GAIN OR LOSS ON ANNUAL SESSION	—0—

1951 MICHIGAN POSTGRADUATE CLINICAL INSTITUTE

INCOME:	
Booth Sales (70 spaces)	$ 11,740.00
EXPENSES:	
Scientific Meeting	2,600.00
Committee Meetings	300.00
Printing, Mailing & Postage	2,000.00
Exhibit Expense	2,500.00
Press Expense	750.00
Registration	150.00
Hotel Expense (MSMS Staff)	440.00
Salaries	2,100.00
Miscellaneous Expense	900.00
Total Expenses	$ 11,740.00
GAIN OR LOSS ON P.G.C.I.	—0—

PUBLIC EDUCATION PROGRAM

INCOME:	
Balance on Hand Jan. 1 (includes $30,000 in Bonds)	$ 54,137.07
Balance from P.E. Reserve Funds, Dec. 22 ,1950	5,463.91
4400 Members @ $20.00	88,000.00
Other Income (Sale of Movie)	
Total Funds Available	$147,600.98
EXPENSES:	
Clipping Service	$ 300.00
Committee Meetings	2,000.00
Equipment & Repairs	300.00
Postage & Mailing	3,500.00
Printing	600.00
Office Supplies	1,100.00
Rent & Light	900.00
Rent to Wayne Co. Med. Soc.	240.00
Salaries	43,000.00
Telephone & Telegraph	4,400.00
Travel	7,200.00
Cinema	5,000.00
Display Advertising	500.00
Newspapers	2,500.00
Publications & Pamphlets	8,000.00
Radio "Tell Me, Doctor"	23,000.00
National Meeting Expense	1,500.00
County Secretary's—P.R. Conf.	3,000.00
Miscellaneous Expense	2,500.00
Special Committee on Education	500.00
County Society Meetings	1,000.00
Total Expenses	$111,040.00
Publication Education Surplus (from 1951 Income)	30,000.00
	$141,040.00
Balance to January 1 incl. interest income of $2,200—earmarked	6,560.98

NOTE: THIS BUDGET REPRESENTS THE ENTIRE EXPENSES FOR PUBLIC EDUCATION ACTIVITIES. THIS WAS PREVIOUSLY BUDGETED UNDER TWO SEPARATE ACCOUNTS: PUBLIC EDUCATION ACCOUNT AND PUBLIC EDUCATION RESERVE FUND.

RHEUMATIC FEVER CONTROL PROGRAM

INCOME:	
Balance on Hand January 1	$ 23,467.55
Accts. Receivable:	
Michigan Heart Association	11,623.16
Contribution:	
Michigan Heart Association	15,887.67
Michigan Society for Crippled Children and Adults, Inc.	3,500.00
Michigan Chapter—Arthritis & Rheumatism Found.	
TOTAL FUNDS AVAILABLE:	54,478.38
EXPENSES:	
Central Office:	
Committee Meetings	$ 1,200.00
Equipment & Repairs	1,000.00
Payroll Taxes	250.00
Postage	200.00
Printing & Mailing	1,000.00
Office Supplies	300.00
Publications & Pamphlets	1,000.00
Administrative Salaries	8,800.00
Central Office Salaries	1,000.00
Travel	2,000.00
Miscellaneous	100.00
Exhibit	800.00
Field Worker (Salary)	4,800.00
Total Central Office Expense	$ 22,450.00
Control Centers:	
Alpena	$ 500.00
Ann Arbor	500.00
Bay City	1,200.00
Detroit	1,500.00
Grand Rapids & Muskegon	3,500.00
Jackson	500.00
Kalamazoo	1,000.00
Lansing	1,000.00
Marquette	2,000.00
Pontiac	1,000.00
Saginaw	1,000.00
Traverse City	1,500.00
Inactive & Proposed Centers	4,500.00
Contingencies	12,328.38
Total Control Center Expense:	$ 32,028.38
TOTAL EXPENSES:	$ 54,478.38

MASS BLOOD TYPING

(Continued from Page 288)

While the blood-typing program has been in progress, further improvements and valuable modifications are being found constantly. Our experiences, pooled with those of other communities which have recently undertaken similar programs, will eventually help create a pattern according to which mass blood typing may be carried out with maximal economy, speed and accuracy.

To those who had a part in the mass blood typing of Jackson this project has been more than a mere job—it has been a civic and patriotic enterprise to which every participant contributed happily and generously in time, material and ideas. This fine display of American spirit has demonstrated that lack of funds may well be compensated by the willingness of patriotic citizens to give of their own self and that the cost of the entire project may be reduced to a level well within reach of every community.

MEDICAL DEFENSE ACTIVITIES

(Continued from Page 293)

F. A sub-committee has been given the task of developing a procedure for the keeping of records and statistics. One of its main duties is to develop adequate casualty tags and records.

G. There has been appointed a personnel assignment sub-committee which, working closely with hospital medical staffs, will plan the assignment of doctors to the various units in the medical plan.

In this presentation, there has been no attempt to deal in specific details. The Medical Defense Plan of the Wayne County Medical Society has been given in broad outline together with an estimate of the personnel requirements. The various sub-committees of the Committee on Civilian Defense and Disaster of the Wayne County Medical Society have been presented.

Conclusion

The plan has been formulated with the confident understanding that all professional groups and individuals will co-operate and all will carry out the specific duties of their assignment. The success of this plan depends upon this. No plan can ever be developed and implemented unless everyone accepts as serious the threat which hovers over us. History is replete with evidence that men are capable of making decisions to carry war to civilian populations. With world conditions as they are today, the only way civilians can survive is to know what to expect, and to plan what to do about it. We doctors can tell people these things—but we can't always just keep on talking. We have got to do something concrete. People look to us for something and we have to see that they get it.

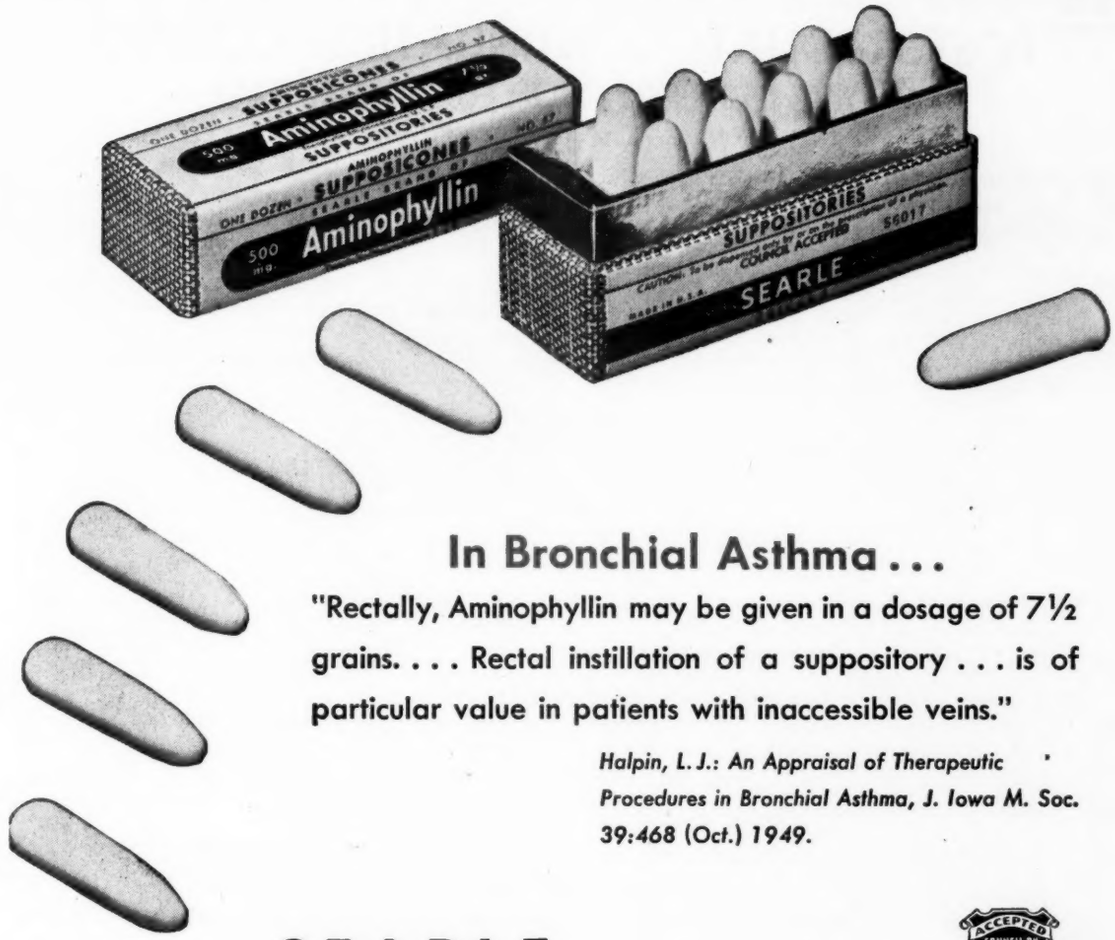
DETROIT PHYSIOLOGICAL SOCIETY

(Continued from Page 299)

lymph nodes in predicting the survival prospects of patients with carcinoma has been repeatedly stated. One might conclude that the frequency of discovery of lymphatic metastasis is almost directly proportional to the inquisitiveness and patience of the pathologist. Special techniques have been offered for recognizing and counting lymph nodes in gross pathological specimens. All have accomplished this end but are too slow and cumbersome for practical purposes. A method is presented which is more rapid and less tedious than other techniques of lymph node examination and permits accurate examination of either small or large specimens.

Formalin-fixed gross specimens are embedded in a water-soluble synthetic wax, Carbowax, using transparent plastic sausage casings for containers. The embedded tissue is sliced serially with a butcher's rotary meat slicer and is transilluminated by fluorescent light. Each slice of one to two millimeters in thickness is oriented next to its neighbor on a glass plate so that the examiner can recognize the presence of a single node in more than one slice, thus avoiding a falsely high lymph node count. If histological sections of any portion of a slice are desired, the area is removed from the slide with a knife and placed directly into melted embedding medium.

Where this method has been used, it is believed that every lymph node larger than two millimeters has been found and examined. It is felt that this method is feasible for routine laboratory examinations and that its accuracy will make it valuable in investigative studies of the spread of cancer.



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"Rectally, Aminophyllin may be given in a dosage of 7½ grains. . . . Rectal instillation of a suppository . . . is of particular value in patients with inaccessible veins."

Halpin, L. J.: An Appraisal of Therapeutic Procedures in Bronchial Asthma, J. Iowa M. Soc. 39:468 (Oct.) 1949.

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RESEARCH IN THE SERVICE OF MEDICINE **SEARLE**

POSTGRADUATE CONTINUATION COURSES

WAYNE UNIVERSITY COLLEGE OF MEDICINE

March 12-June 9, 1951

These courses are open to all qualified persons.

Veterans who are not Residents in a Detroit hospital and who have Certificates of Eligibility under the GI Bill, should make arrangements for tuition and books, as provided by the GI Bill, by presenting these Certificates of Eligibility to Dr. Arthur Johnson, Veterans Administrator at Wayne University, 5115 Second.

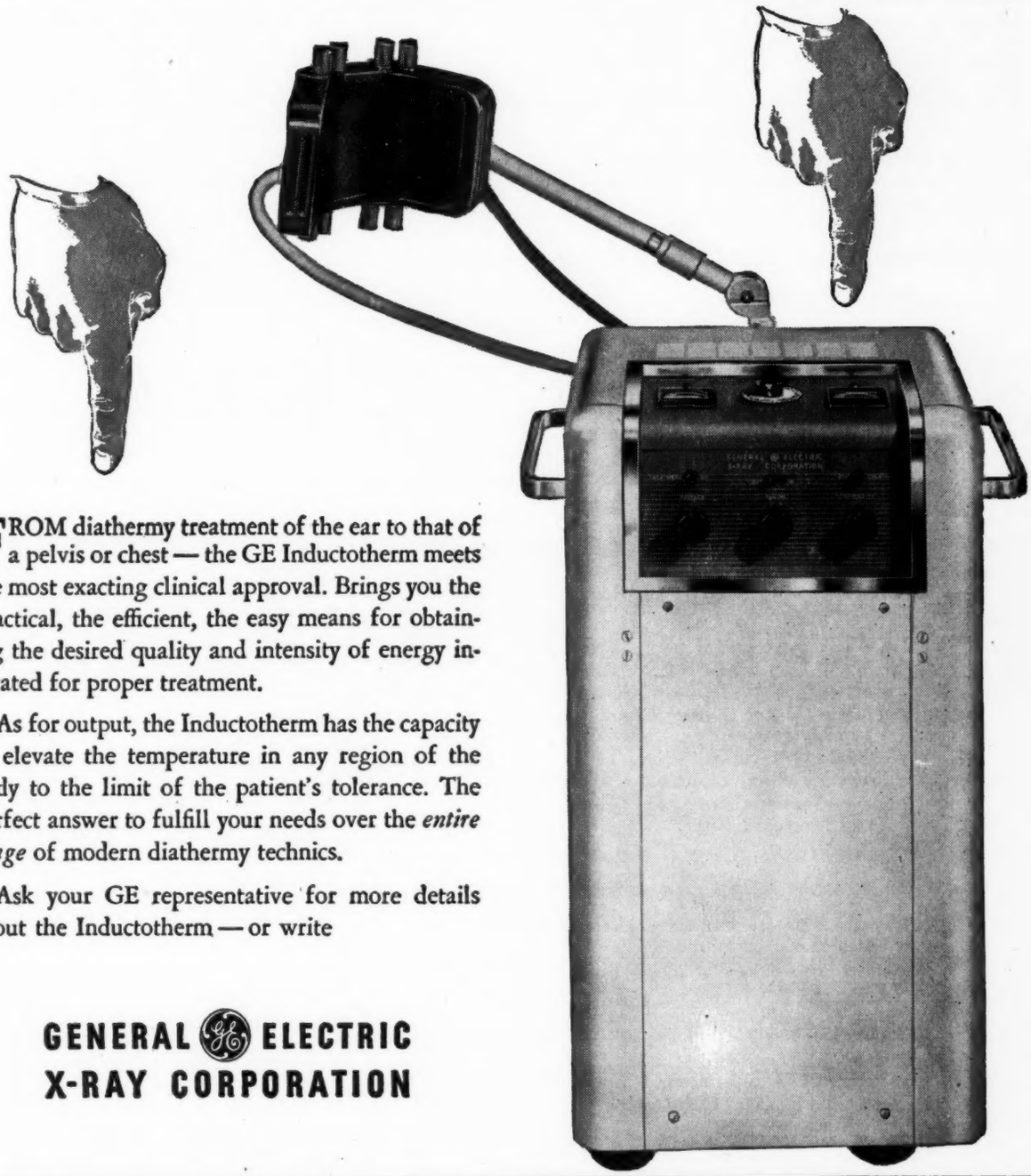
If you do not possess a Certificate of Eligibility, please call Dr. Johnson at Temple 1-1450, Veterans Affairs, before going to his office, and he will inform you what papers it is necessary to bring with you. *This must be completed before you register.*

Registration for these courses can be made in the office of Postgraduate Medical Education at the College of Medicine, 1512 St. Antoine.

ANATOMY			
Surgical Anatomy (Last half)	College of Medicine	Tuesday 3:00-5:00	$35.00
Regional Anatomy Trunk	College of Medicine	Wednesday 1:00-5:00	$50.00
Head and Neck	College of Medicine	Thursday 1:00-5:00	$50.00
Back & Extremities	College of Medicine	Friday 1:00-5:00	$50.00
Problems in Neurology	College of Medicine	Thursday 3:00-5:00	$35.00
MICROBIOLOGY			
Virology	College of Medicine	To be arranged	$50.00
Bacterial Physiology	College of Medicine	To be arranged	$45.00
PHYSIOLOGICAL CHEMISTRY			
Seminar in P. Chemistry	College of Medicine	Wednesday 3:30-4:30	$15.00
Nutrition	College of Medicine	Mon., Wed., Fri. 11:00-12:00	$35.00
PHYSIOLOGY			
Survey of Physiology	College of Medicine	Tuesday 4:00-5:00	$15.00
PATHOLOGGY			
Path. of Neoplasms	College of Medicine	Wednesday 1:00-5:00	$50.00
Path. of the Heart	College of Medicine	Friday 1:00-5:00	$50.00
Advanced Hematology (Limit 5)	College of Medicine	Monday 1:00-5:00	$50.00
DERMATOLOGY			
Seminar in Dermatology	Receiving Hospital	Wednesday 10:00-11:30	$15.00
Dermopathology Seminar	College of Medicine	Tuesday 11:00-12:00	$15.00
Conf. on Venereal Diseases	Social Hygiene Clinic	Thursday 1:00-2:30	$15.00
INTERNAL MEDICINE			
Medical Conference	Receiving Hospital	Wednesday 5:00-6:00	$15.00
Gastroenterology	Receiving Hospital	Saturday 8:00-9:00 a.m.	$15.00
Medical Seminar	Receiving Hospital	Thursday 6:30-7:30	$15.00
Medical X-Ray Conference	Receiving Hospital	Tuesday 11:00-12:00	$15.00
SURGERY			
Surgery Seminar	College of Medicine	Monday 4:00-5:00	$15.00
COMPREHENSIVE UNIT COURSE			
Basic Ophthalmology (Limit 10)	Kresge Eye Institute 690 Mullett Street	Full Time (9 months)	$900.00

This class will begin September, 1951. Applications must be in immediately. For an application form, write to the Postgraduate Department at the College of Medicine, 1512 St. Antoine, Detroit 26.

Meets every requirement for all diathermy technics... the GE INDUCTOTHERM



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POSTGRADUATE COURSE IN EARLY DETECTION OF CANCER

WAYNE UNIVERSITY COLLEGE of MEDICINE

The Wayne University College of Medicine offers a postgraduate course in the early detection of cancer. Three facilities of the College are to be used throughout the year in the presentation of the course: The Yates Memorial Clinic at 4811 John R, Detroit, the Detroit Receiving Hospital and the Veterans Administration Hospital, Dearborn. The course is scheduled so that it may be taken for the entire year of three quarters or so that any one quarter may be elected. The course is designed so that doctors of medicine may become acquainted with the means of diagnosis and with the tools of diagnosis which are readily available to them.

The offering for all quarters of the school year is as follows:

Third Quarter beginning March 12, 1951 and ending June 9, 1951

Wednesday—Review of Biopsies and Papanicolau Smears Yates Memorial Clinic	10:30-11:30 a.m.
Wednesday—Tumor Clinic Detroit Receiving Hospital	12:30- 2:00 p.m.
Thursday—Cancer Clinic (Women) Yates Memorial Clinic	3:00- 5:00 p.m.
Friday—Consultation Clinic Yates Memorial Clinic	10:00-12:00 a.m.

First Quarter beginning September 10, 1951 and ending December 1, 1951

Monday—Tumor Board Detroit Receiving Hospital	12:30- 2:00 p.m.
Tuesday—Cancer Control Clinic (Men) Yates Memorial Clinic	7:00- 9:00 p.m.
Wednesday—Review of Biopsy Slides and Papanicolau Smears Yates Memorial Clinic	10:30-11:30 a.m.
Friday—Consultation Clinic Yates Memorial Clinic	10:00-12:00 a.m.

Second Quarter beginning December 3, 1951 and ending March 8, 1952

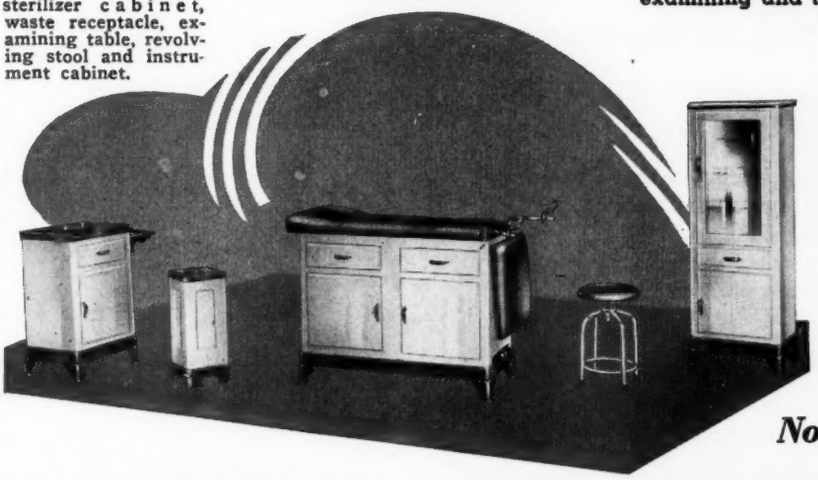
Monday—Cancer Control Clinic (Women) Yates Memorial Clinic	3:00- 5:00 p.m.
Wednesday—Review of Biopsy Slides and Papanicolau Smears Yates Memorial Clinic	10:30-11:30 a.m.
Friday—Consultation Clinic Yates Memorial Clinic	10:00-12:00 a.m.
Friday—Tumor Board Veterans Administration Hospital, Dearborn	3:00- 5:00 p.m.

Registration for this course can be made in the office of Postgraduate Medical Education at the College of Medicine, 1512 St. Antoine Street, Detroit 26. Those wishing to be enrolled for the spring quarter of 1951 must register *before March 10.* Tuition is $50.00 per quarter, and the class is limited to fifteen.

AN INSPIRATION TO PROFESSIONAL EFFICIENCY

Pictured below is the Buckingham Group, ideal for the general practitioner who performs a wide variety of services in his office. Set consists of sterilizer cabinet, waste receptacle, examining table, revolving stool and instrument cabinet.

Steelux



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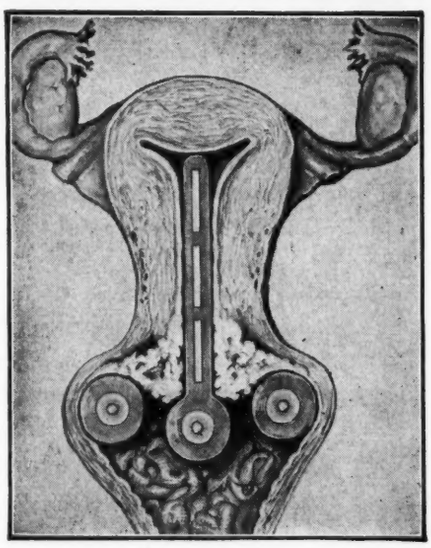

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THE MICHIGAN POSTGRADUATE PROGRAM IN MEDICINE

Extramural Courses -- Spring, 1951

The Michigan State Medical Society, in co-operation with the University of Michigan Medical School, Wayne University College of Medicine, and the Michigan Department of Health, announces the extramural postgraduate program for Spring, 1951.

Centers	*Dates*
Alpena	May 10
Bay City	May 9
Cadillac	April 26
Flint	May 22
Jackson	April 17
Kalamazoo	April 17
Lansing	April 24
Midland	April 26
Mt. Clemens	April 4 and 18
Muskegon	May 16
Upper Peninsula	
Escanaba	May 14 and 15
Iron Mountain	May 15 and 16
Sault Ste. Marie	May 16 and 17
Marquette	May 14 and 15
Houghton	May 15 and 16
Ironwood	May 16 and 17

The detailed program will be mailed to the members of the Michigan State Medical Society.

For further information, address:

H. H. Cummings, M.D.
Department of Postgraduate Medicine
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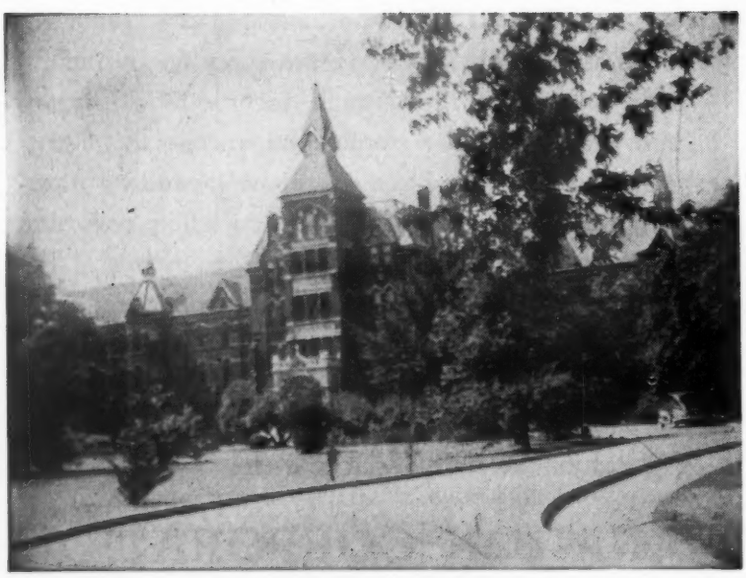

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Upon completion of the course, lasting about 4 weeks, the patient is referred back to his physician to whom a full progress report is given.

Both male and female patients are accepted.

THE KEELEY INSTITUTE
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Michigan's Department of Health

Albert E. Heustis, M.D., Commissioner

Michigan's fifty-five local health officers will gather in Lansing, April 4-6, for the second annual Commissioner's Conference of Health Officers to consider how the public health programs of the State are being and should be conducted.

The health officers come to Lansing at the invitation of Commissioner Heustis who feels that those who take the public health program directly to the people are the ones who can best advise him on the health needs and wants of the people. The local health officers will meet in executive sessions. State Health Department staff members will be available for consultation but will meet with the health officers only upon request.

The Conference is patterned after the State and Territorial Health Officers Conference which federal law requires the Surgeon General to call. The First Commissioner's Conference called by Dr. Heustis in February, 1950, resulted in about fifty recommendations for improvement of the public health program, a large share of which have already been put into practice.

* * *

A new film, *Gastrointestinal Cancer: The Problem of Early Diagnosis,* can be borrowed from the Film Loan Library of the Michigan Department of Health. The film, sponsored by the American Cancer Society and the National Cancer Institute, shows how, through the use of modern diagnostic methods and certain simple laboratory tests, many gastrointestinal cancers can be found at the early, curable stage. Under these conditions, mortality can be sharply reduced.

The film is for professional audiences—medical societies, medical schools, hospital staffs and physicians' or nurses' groups. The film has just arrived in the Library and there are no bookings ahead at the present time.

* * *

All fluoroscopic shoe-fitting machines in Michigan are now being checked by the Division of Industrial Health, Michigan Department of Health, to make sure that they meet proper standards to protect customers and store employes from the danger of overexposure to x-rays.

Indiscriminate and too frequent use of any x-ray shoe-fitting machine is dangerous; overexposure to x-rays can cause radiation burns, anemia, leukemia and chronic radiation poisoning, the public is being warned. No individual should have more than twelve fluoroscopic shoe-fittings in one year and each exposure should be limited to five seconds.

Investigating the hazards of shoe-fitting machines in the state, industrial health engineers have found some older type, improperly shielded machines which actually continually leaked x-rays endangering the employe and the customer as well. They found others which used as much as six times the allowable exposure time.

The majority of the machines have now been checked. When a machine is found to be in proper working order, an acceptance card is placed on it, signifying that at the time it was checked it was non-hazardous if the customer limited his fluoroscopic shoe-fittings to no more than twelve a year.

* * *

The Division of Disease Control, Records and Statistics is receiving many queries about notifications of birth registrations. It was necessary to discontinue this service due to a cut in federal funds. This means that the Department no longer has this help in correcting its records and is no longer able to send out the immunization record forms which were previously enclosed with the notifications to parents.

* * *

W. H. Gebhard, of the Division of Laboratories, Michigan Department of Health, is co-author of a paper on "Dried Smallpox Vaccine" in the January 12, 1951, issue of *Public Health Reports.* J. W. Hornibrook, M.D., of the Laboratory of Biologics Control, Microbiological Institute, National Institute of Health, is senior author of the article.

* * *

Marian L. Slemons, M.D., deputy health commissioner of the Saginaw County Health Department since June 1, 1950, resigned, effective December 1, 1950.

Garland L. Weidner, M.D., has been appointed director of the Saginaw City Health Department to succeed E. W. Topp, M.D., who resigned last July 1 but has been acting director until his successor could be named.

Charles Phillip Anderson, M.D., recently with the Wayne County Health Department, was named assistant to Joseph G. Molner, M.D., Commissioner of the Detroit City Health Department, effective December 26, 1950.

Mr. James Walsh has been appointed acting director of the Isabella County Health Department to serve until a full-time director has been appointed.

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Communications

MEDICAL PRACTICE IN ENGLAND

The following is an excerpt from a letter written from a resident in a British hospital to a resident in a Michigan hospital; both graduated from the Medical School of the University of Michigan, 1945.

10, Chiltern Gardens,
Brooklands,
Manchester, England,
Dec. 3, 1950.

Craig Barlow, M.D.
St. Joseph's Mercy Hospital,
Ann Arbor, Michigan

Dear Craig:

First of all let me thank you for your very lucid and interesting account of the problems which would face me should I come back to the United States. You will appreciate that it is a big decision to make—sometimes I feel it would be the right thing and sometimes I'm not so sure. . . . At present Joan and I are comfortably settled, but for how long no one can say.

I am still learning surgery at the old hospital and until quite recently have felt more or less secure, but two weeks ago the Ministry of Health (opinion thereon deleted by editor) decided to get tough and told us that roughly 40% of the hospital registrars (i.e., comparable to your residents, junior and senior, who hope to become specialists eventually) were to be "discarded," and offered us a life in the armed forces or the Colonial Service as an alternative. This policy (no doubt necessitated by the country's embarrassing financial position) has made the future look very bleak for such as myself.

I might add that entry into general practice is becoming increasingly difficult unless one is not averse to a life of slavery amongst an unmanageable horde of patients in an industrial area.

It all boils down to the fact that the Government hasn't played straight with us. We, the hospital trainees, have been made financially comfortable and led to believe that, with expansion in the country's hospital and consultant facilities, there would be jobs (as consultants) for all who could make the grade. It appears that now we are to be bitterly disappointed. Needless to say we are fighting against it through the usual democratic channels, but I feel that the writing is already on the wall and cannot be erased. The octogenarian will continue to obtain free dentures and spectacles whilst the youngster with pulmonary TB waits for a sanatorium bed. I will write you more details of our plight sometime when I have more time.

Very sincerely,
GEORGE
(GEORGE R. CARR, M.D.)

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(Continued on Page 330)

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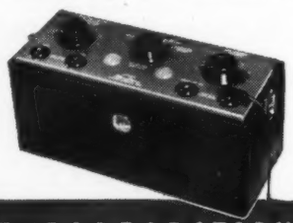

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(Continued from Page 328)

those emergency conditions requiring hospitalization. Various additional services have been added as they could be proven actuarily sound.

Today, following several widely separated surveys, we find that through the doctor or the patient, or their combined efforts, requests have been made and services instituted which were never intended under the original principle of catastrophic coverage only.

For example: Blue Cross, within the present premium structure, was never intended to furnish hospitalization for rest cures. Prolonged stays in the hospital following operations or serious medical illnesses, to avoid home care, were not intended; nor was hospitalization for complete diagnostic survey part of the plan.

Every one of us who is in a position to prescribe the services offered by Blue Cross should prevent its unintended over-utilization. We are asking each hospital staff to survey this situation and take immediate steps to correct any misconception of the principle or misuse of the provisions of the policy—as indicated above—by anyone concerned. Also, instances in which the subscriber has been oversold by Blue Cross representatives should be reported at once.

Frankly, we must do these things, if we do not wish to price Blue Cross out of the market, for rates must keep pace with cost of services rendered. We regard this as a matter of vital importance in which we earnestly solicit your co-operation.

Very truly yours,

C. E. UMPHREY,
President

In Memoriam

Annie Stevens Rundell, M.D., of Vassar, Michigan, was born in 1867 in Farmington, Maine, and was graduated from the University of Michigan School of Medicine in 1898. She was a past president of the Tuscola County Medical Society, a former member of the Michigan State Medical Society and the American Medical Association and a member of the Alpha Epsilon Iota Sorority. Doctor Rundell died February 22, 1950 in Vassar at the age of eighty-three.

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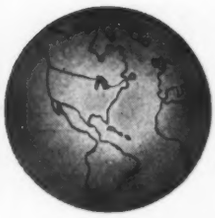

. . . . . NEWS MEDICAL

MEDICAL MEETINGS AND CLINIC DAYS

A list of known medical meetings and clinic days, sponsored by county medical societies and other physicians' groups in Michigan, follows:

Spring	MSMS Postgraduate Extramural Courses	State-wide
April 3	Calhoun County Medical Society's Clinic Day	Battle Creek
April 4	SECOND MICHIGAN INDUSTRIAL HEALTH DAY	Detroit
April 18	Genesee County Medical Society's Cancer Day	Flint
April	Highland Park Physicians Club Clinic	Highland Park
May 3	Ingham County Medical Society's Clinic Day	Lansing
May 9	Wayne University College of Medicine Alumni Association Clinic Day and Reunion	Detroit
May 9-11	American College of Surgeons Section Meeting	Detroit
May 22	Bon Secours Hospital Clinic Day	Grosse Pointe
June 5	St. Clair County Medical Society's Clinic Day. Black River Country Club	
June	Upper Peninsula Medical Society Annual Meeting	
July 26-27	Annual Coller-Penberthy Medical-Surgical Conference (sponsored by Grand Traverse - Leelanau - Benzie County Medical Society)	Traverse City
Sept. 26-27-28	MICHIGAN STATE MEDICAL SOCIETY ANNUAL SESSION	Grand Rapids
October 13	Third Michigan Cancer Conference	East Lansing
Autumn	MSMS Postgraduate Extramural Courses	State-wide
Oct. or Nov.	American Academy of General Practice of Wayne County	Detroit
November 7	Clara Elizabeth Fund Lectures (sponsored by Genesee County Medical Society and the Clara Elizabeth Fund for Maternal Health)	Flint

Additions to this list of meetings are invited by the Editor of JMSMS, in order to make this monthly announcement complete and accurate.

George F. Lull, M.D., *(right)*, Secretary and General Manager of the American Medical Association, congratulates Warren R. Mullen of Jackson, Michigan, upon his election as president of the newly organized Student American Medical Association. Mullen was elected on the second day of the two-day Constitutional Convention held December 28 and 29 at AMA headquarters in Chicago. The objectives of the new student organization are: (1) the advancement of medicine; (2) contribution to the welfare and education of medical students; (3) familiarization of its members with the purposes and ideals of the medical profession; and (4) the preparation of its members to meet the social, moral and ethical obligations of the profession.

Michigan Authors

Sidney Friedlaender, M.D., and **Alex S. Friedlaender, M.D.**, Detroit, presented a paper entitled "Oral Cortisone Therapy in Allergic Disease" before the 7th annual meeting, American Academy of Allergy, New York City, February 5, 1951. They also appeared on the program of the American College of Allergists, 7th annual session, Chicago, Illinois, February 12, 1951, presenting a paper entitled "Observations on the Use of ACTH and Cortisone in Asthma, Hay Fever, and Other Allergic Diseases."

* * *

Sidney Friedlaender, M.D., assisted **Clyde Christensen, M.D.**, of the University of Minnesota in the teaching of a special course in Mycology, given under the

(Continued on Page 334)

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(Continued from Page 332)

auspices of The American Academy of Allergy, February 2 through 4, 1951, at Cornell University Medical College, New York, New York.

* * *

William H. Havener, M.D., Ann Arbor, published a paper, "Cerebellar-Macular Abiotrophy," in the A.M.A. *Archives of Ophthalmology,* January, 1951.

* * *

Kenneth B. Babcock, M.D., Grace Hospital, Detroit, published a paper, "Telecasts Offer Hospitals a Mass Teaching Medium," in *The Journal of the American Hospital Association,* February, 1951.

* * *

Maternal Deaths.—All physicians of Michigan who render obstetric care, are requested to report immediately to the Michigan Department of Health, by "phone" (charges reversed), when a maternal death occurs in their practice, stating the name of the mother, date, place and cause of death.

* * *

Public Health Doctors.—The Civilian Personnel Branch of the Army Surgeon General's Office announces vacancies for one Medical Officer (Director of Public Health and Welfare) in Okinawa and nine Public Health Officers in Japan. All of these positions have to do with the care of civilian population. Applicants must be Doctors of Medicine with public health and welfare experience. There is no age limit.

Doctors wishing to make application for these positions or further information concerning them should write to Civilian Personnel Branch, Army Surgeon General's Office, Main Navy Building, Washington 25, D. C.

* * *

First Women Doctors Report for Army Duty.—The first two women physicians to volunteer and be accepted for service with the Army Medical Corps since the end of World War II have reported for duty, Major General Raymond W. Bliss, Surgeon General of the Army, announced January 18, 1951.

The new medical officers, both of whom will serve in the grade of major, are Doctor Ruth E. Church, of Walworth, Wisconsin, and Doctor Theresa T. Woo, of 1500 New Hampshire Avenue, N. W., Washington, D. C. They are assigned to the Preventive Medicine Division of the Office of the Surgeon General. Major Woo served in the Army for two years during World War II, while Major Church has no previous military service.

* * *

New Air Force Medical Center.—The Medical Department of the United States Air Force plans to retain its identity and become larger and stronger than ever. The House Armed Services Committee deleted, from a pending United States Air Force Reorganization Bill, a provision that would have abolished the Air Force Medical School Service, which will not, now, be transferred to the Army and Navy. It is planned to establish a thirty million dollar aeromedical center at, or near Randolph Field in Texas. This combined with the pres-

(Continued on Page 336)

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Relationship of Stress to Autonomic Lability

Studies in psychosomatics have shown that functional disorders often are a result of the patient's inability to adjust to emotionally stressful situations (stressor factors).

Nervous tension and chronic anxiety, discharged through a labile Autonomic Nervous System, can cause somatic disturbance. [1,2] Such states may involve any one of the organ systems or several at one time. [1,3] The outline below is designed to relate gastrointestinal and cardiovascular symptomatology to the exaggerated response of the autonomic nervous system.

	Physiologic Effects of Autonomic Discharge	
	Sympathetic	Parasympathetic
Gastro-intestinal System	Hypomotility Intestinal Atony Hyposecretion Reduced salivation	Hypermotility Gastrointestinal spasm Hypersecretion
Cardio-vascular System	Rapid heart rate Peripheral vaso-constriction	Slow heart rate Vasodilatation
Functional Manifesta-tions	Palpitation Tachycardia Elevated blood pressure Dry mouth and throat	Heartburn Nausea-vomiting Low blood pressure Colonic spasm

The data here tabulated is from references 3,4,5,6,7, given below.

When the clinical picture is suggestive of functional disorder, the diagnosis is supported by the presence of the following indications of autonomic lability:

Variable Blood Pressure
Body Temperature Variations
Changing pulse rate
Deviations in B. M. R.
Exaggerated Cold Pressure Reflex
Oculo-Cardiac Reflex Abnormalities
Glucose Tolerance Alterations

Therapy in these cases is directed toward: 1) relieving the somatic disturbance to prepare the patient for psychotherapy*; 2) guidance in making adjustment to stressful situations and correction of unhealthy attitudes.

*Drug treatment using adrenergic and cholinergic blocking agents in conjunction with sedatives. 8,9,10.

1. Ebaugh, F.: Postgrad. Med. *4:* 208, 1948. 2. Wilbur, D.: J.A.M.A. *141:* 1199, 1949. 3. Williams, E. and Carmichael, C.: J. Nat'l. Med. Assoc. *42:* 32, 1950. 4. Goodman, L. and Gilman, A.: The Pharmacological Basis of Therapeutics, The Macmillan Co., 1941. 5. Katz, L. et al: Ann. Int. Med. *27:* 261, 1947. 6. Weiss, E. et al: Am. J. Psychiat. *107:* 264, 1950. 7. Alvarez, W.: Chicago Med. Soc. Bulletin, 581, 1950. 8. Rakoff, A.: A Course in Practical Therapeutics, Williams and Wilkins, 1948. 9. Karnosh, L. and Zucker, E.: A Handbook of Psychiatry. C. V. Mosby Co., 1945. 10. Harris, L.: Canad. M.A.J. *58:* 251, 1948.

Sandoz Pharmaceuticals

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(Continued from Page 334)

ent School of Aviation Medicine at Randolph would establish a research institute, clinical research facilities, aviation clinic and aeromedical library.

* * *

H.R. 351.—Mrs. Rogers, Representative from Massachusetts, on January 3, 1951, introduced a bill to establish a Department of Veterans Affairs. Under this act, if passed, the Veterans Administration would become a full-fledged department with a secretary in the President's Cabinet. The President in his State of the Union message proposed that he be granted full authority to change or establish new Departments during the Emergency as a measure of defense. The Senate and the House have had bills introduced, S.101 and H.R.1545, which would deny the President authority to create new departments with cabinet rank in the name of defense.

* * *

Correction

In the paper by Gordon B. Myers, M.D., et al: "Treatment of Congestive Failure Refractory to the Standard Regimen," published in THE JOURNAL for December, 1950, on page 1437 in the right hand column, 19th line, the word "digitoxin" should have been "digoxin."

The original copy was correct, but this mistake in spelling was missed in the proof. We are glad to make this correction and hope that our readers who are interested will make the correction in their copies of THE JOURNAL, because this deals with the use of a particular medication for a particular purpose.

* * *

More Socialized Medicine—Another Bite.—H.R. 1287, introduced January 12, 1951, by Mr. King of California, will provide dispensary treatment and hospitalization if accommodations are available, including subsistence without cost in Army and Navy Hospitals for retired personnel of Army, Navy, Marine Corps, and Coast Guard, including members of the Fleet Reserve and Fleet Marine Reserve. This extends socialized medicine by quite a bite.

* * *

The American Medical Education Foundation has been organized under the laws of Illinois as a non-profit corporation for the receipt of funds for medical education. Establishment of the Foundation followed earlier action by the Board of Trustees of the American Medical Association, which last December appropriated half a million dollars as the nucleus of a fund to be raised for the aid of medical schools throughout the Nation.

"Assuring an adequate future supply of doctors, through American methods which will preseve the standards and freedom of medical education, is of vital importance to the continued success of the medical care plans, to all those engaged in the provision of health services and to every American citizen," Elmer L. Henderson, M.D., President A.M.A., said.

"The medical profession is willing to take the lead, but it also needs and asks the help of all Americans who prefer initiative and enterprise to Government domination and control."

The American Medical Association is asking all mem-

Say you saw it in the Journal of the Michigan State Medical Society

bers, and others who are interested, to contribute to this Foundation, which is primarily to relieve Medical Schools.

Again Michigan can claim a "First for Michigan" in that the Michigan Foundation for Medical and Health Education was incorporated and dedicated in 1945 "to acquire, provide, use, develop, endow, and finance methods, means, and facilities for postgraduate education in medicine, for education in medicine, for lay health education, and for research, fellowships and scholarships."

* * *

The Second International Poliomyelitis Conference has been scheduled for September 3-7, 1951, at the Medicinsk-Anatomisk Institut of the University of Copenhagen, in Copenhagen, Denmark, officials of the International Poliomyelitis Congress have announced.

Sponsors of the meeting are the National Foundation for Infantile Paralysis of the United States and the Danish National Association for Infantile Paralysis. Presiding President of the Conference is Professor Niels Bohr of Copenhagen.

The tentative program of the five-day meeting includes 32 papers and discussions on the general headings: "Virus and Its Interaction with the Host Cell;" "Pathology and Pathophysiology of Poliomyelitis;" "The Coxsackie Group of the Viruses;" "Differential Diagnosis in Acute Poliomyelitis;" "Treatment of Poliomyelitis;" "Immunity and Resistance in Poliomyelitis and Other Virus Infections;" and "Ecology of Poliomyelitis."

Transportation and currency arrangements are being facilitated by Thomas Cook & Son, Wagon-Lits-Cook, and the American Express Company. Conference officials announced that the Swedish American Lines are making available the MS STOCKHOLM, which is scheduled to leave New York on August 25th, and to arrive at Copenhagen on September 2.

Requests for hotel accommodations and information concerning the Conference may be obtained from the Secretariate of the Second International Poliomyelitis Conference, Statens Seruminstitut, 80 Amager Boulevard, Copenhagen, Denmark. The telegraphic address is *Poliocon, Copenhagen.*

* * *

AMA Honors Prepaid Medical Care Plan.—At a dinner meeting held in observation of the United Medical Service, the Blue Shield medical plan operating in the metropolitan district of New York, having enrolled its 2,000,000th member, at the Hotel Biltmore, New York, January 25, 1951, Elmer L. Henderson, M.D., President of the American Medical Association, sounded a warning against the dangers of Federal subsidy as a means of providing financial aid to medical schools. He urged nationwide support of a newly established fund for aid to medical education.

Dr. Henderson congratulated United Medical Service upon its attainments in six and a half years. "Your organization, by virtue of both its experience and its excellent leadership, also has contributed much to the national evolution and improvement of Voluntary Health Insurance." U.M.S. "is not the oldest of the country's Blue Shield medical care plans, but it definitely is one of the pioneers and top leaders."

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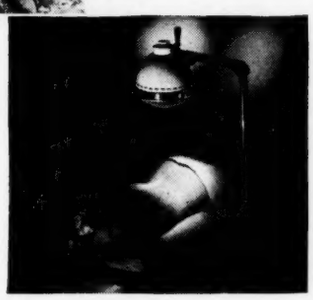

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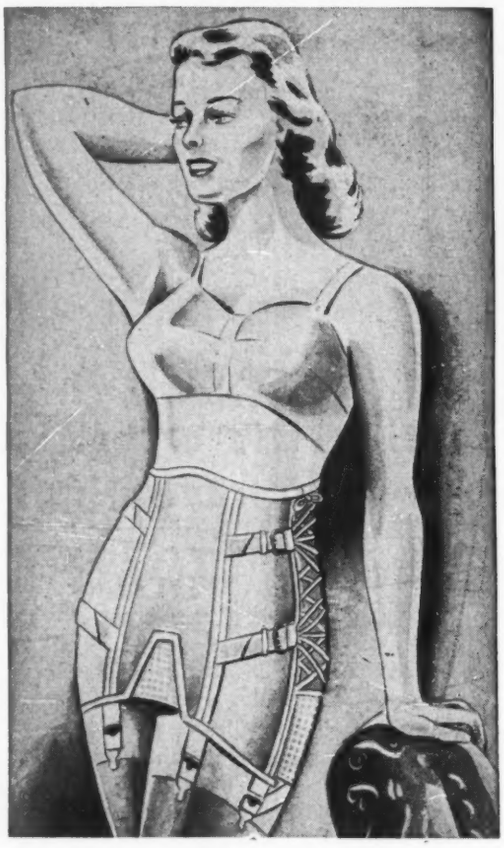

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"At the moment, according to my latest information, the United Medical Service is the second largest of the non-profit plans providing insurance protection against surgical and medical bills. I understand that the Blue Shield plan in Michigan, the Michigan Medical Service, edged slightly ahead of you just two or three months ago." (Almost a hundred thousand. Editor.)

"The Blue Shield plans are enrolling new members at the rate of 28,000 every working day, and now protect more than seventeen million persons, or approximately twelve per cent of the population. Other non-profit medical care plans, which are not yet in the Blue Shield group, cover an additional two and one quarter million people, making a total of nearly twenty million in just the physician-sponsored plans alone."

* * *

Hard of Hearing Clinic.—A Hard of Hearing Clinic has been established to be conducted in conjunction with an aural rehabilitation program for hard-of-hearing school children in Michigan. Children from local school systems without special facilities will be given hearing tests and fitted with hearing aids in the M.S.D. clinic after which they will attend the hard-of-hearing classes at the Michigan School. They will receive training in speech reading, the use of hearing aids, auditory training, and their regular school subjects. Where necessary, they will also receive speech correction. Care of the aid, battery testing and rotation, cleaning of the ear mold, care of the cords, and operating the hearing aid efficiently will be taught the pupils. At the end of the special short-term session at the Michigan School, the pupils will return to their respective public schools.

A specially trained teacher-clinician with public school background has been employed to operate the clinic and conduct the classes. The hearing conservation service of the Health Department will assist in the purchase of hearing aids for children who are recommended for hearing aids but are financially unable to purchase them.

Board, room, instruction, and general medical care will be provided without charge. Parents will be expected to provide transportation, clothing, and spending money. Children living in the Flint area may be admitted as day pupils providing the parents can make arrangements for transportation.

The unique feature of the M.S.D. Clinic is the availability of aural rehabilitation for hard-of-hearing children during the school year without any disruption in the school achievement of the child. It is planned that children of about the same age level and achievement will attend the same session.

Information on the clinic has been forwarded to the Michigan Department of Health, to all school nurses in the state of Michigan, school superintendents, and other agencies. Through co-operation of all these agencies, it is hoped that full realization can be had of this program of aural rehabilitation for the hard-of-hearing school child.

The tentative dates of opening for the short-course clinic training classes for the hard of hearing are as follows:

Del Vista Sanitarium
PLAINWELL, MICHIGAN
Member American Hospital Association
EDWIN M. WILLIAMSON, M.D.
Psychiatrist-in-Chief
Professional care for the nervous and mentally ill.
Telephone 2841

Restful Six-acre Estate Overlooking the Kalamazoo River.

February 12, 1951, to March 22, 1951
April 3, 1951, to May 4, 1951
May 7, 1951, to June 14, 1951

Information and applications for entering the Hard of Hearing Clinic can be obtained from Miss Grace Schurr, field representative, at the Michigan School for the Deaf, Flint 2, Michigan.

* * *

The Annual June Clinic of St. Clair County Medical Society will be held at Black River Country Club, June 7, 1951, with morning, afternoon and evening sessions. The morning session will open at 10 o'clock. A Symposium on Endocrinology will be presented by Robert B. Greenblatt, M.D., Professor of Endocrinology at the University of Georgia; Edward Hudson, M.D., Medical Director for the Schering Corp., Bloomfield, New Jersey, and Warren Nelson, M.D., Professor of Anatomy at the University of Iowa.

* * *

Charles T. Anderson, M.D., Detroit, has been appointed Medical Director and Assistant to the Commissioner of the Detroit Department of Health, according to an announcement made by Joseph G. Molner, M.D., Commissioner.

Dr. Anderson was born in Chicago in 1910. He received his B.S. and M.D. degrees from Northwestern University (1932 and 1935). His public health work was taken at North Carolina University and Johns Hopkins University. He is a Diplomate of the American Board of Preventive Medicine and Public Health (1950).

Dr. Anderson has been active in public health work for several years, most recently with the Wayne County Health Department.

* * *

Michigan's Foremost Family Physician Lunette I. Powers, M.D., of Muskegon was honored by her home town with a civic banquet on January 31. The Occidental Hotel of Muskegon was the site for this testimonial dinner, arranged by the Public Health Committee of the Muskegon Chamber of Commerce. More than 300 were present including state and civic leaders.

An enrolled copy of House Concurrent Resolution No. 10 was presented to her by Senator Frank E. McKee and Representative Louis H. Freye which stated:

RESOLVED BY THE HOUSE OF REPRESENTATIVES (the Senate concurring), That the members of the Michigan Legislature congratulate and extend appreciation to Dr. Lunette I. Powers, "Michigan's Foremost Family Physician" for the year 1950.

* * *

The Washtenaw County Medical Society recently mailed two letters to: (a) the members of the Resident Staff of all hospitals in Ann Arbor and Washtenaw County; and (b) the heads of departments at University Hospital and the men in charge of interns at all other hospitals in the county. The letters explained the various types of membership in the Washtenaw County Medical Society and invited all residents and interns to become affiliated with their county medical society as Associate Members.

Congratulations, Washtenaw County Medical Society, on extending the hand of help and friendship to the future doctors in your area.

* * *

The Veterans Administration announces that due to budgetary limitations in the fiscal year 1952, it will close 321 VA offices where only one contact representative is assigned. In Michigan, this includes the cities of Battle Creek, Flint, Jackson, Lansing, Muskegon Heights, Saginaw, Escanaba, Grand Rapids, Kalamazoo, Marquette, St. Joseph, Sault Ste. Marie and Traverse City.

* * *

The American Medical Education Foundation has been formed by the medical profession of America to aid in providing funds for this nation's hard-pressed medical schools. Contributions are being received from individuals and groups, the largest being half a million dollars from the American Medical Association. A sizable sum ($100,000) has been contributed by the California Medical Association.

The AMA urges that every doctor of medicine consider making an annual gift of $100 or more to the American Medical Education Foundation. If the Medical Schools are not aided in a voluntary way—through the American Medical Education Foundation—someone else will have to take over their problems, with solutions certain to be less to the liking of the medical profession than if the doctors work out their own answers.

Contributions may be sent to the Foundation at 535 N. Dearborn Street, Chicago 10, Illinois.

Air Raid Instruction.—The following instructions on what to do in case of an air raid have been issued by Arthur W. Wallander, Director of Civil Defense. It is suggested that they be kept handy.

SNEAK ATTACK—NO WARNING GIVEN
DO THIS FAST

AT HOME—Get under bed or table close to wall away from windows. Cover exposed parts of body.
AT WORK—Get under desk, table or bench. Lie close to wall away from windows or glass doors. Cover exposed parts of body.
ON STREETS—Take any shelter if within a few steps. If no shelter near—fall to ground, face down. Cover exposed parts of body.
IN VEHICLE—Pull in to curb—turn off ignition—cover face and eyes and fall to floor.
CHILDREN IN SCHOOL—If your children are at school YOU stay at home. Don't phone—teachers are trained to care for the students.

WHEN YOU HEAR POLICE OR FIRE SIRENS
DO THIS

AT HOME—Go to previously selected shelter. Keep radio on.
AT WORK—Go to shelter designated by Building Control Director for your floor. Obey instructions of wardens.
ON STREET—Go to nearest public shelter, nearest building or subway. Keep away from windows. Obey orders of air wardens.
IN VEHICLE—Pull to curb—enter public shelter or building. Keep away from glass doors. Obey air wardens.
CHILDREN AT SCHOOL—If your children are at school YOU stay home. Don't phone—teachers are trained to care for the students.

AFTER AN ATTACK

Remain calm. Follow instructions of Civil Defense Forces.
Keep radio on to receive authorized information and instructions.
Do not use your car or telephone except in cases of extreme emergency. Roads and telephone lines are needed for Civil Defense rescue operations.

IF YOU ARE WITHIN BLAST AREA

Remain in your shelter until advised by radio or Civil Defense forces that it is safe to leave.
At first opportunity, remove outer garments and bathe, using plenty of strong soap.
Do not consume food or water or use any objects which may have been exposed to radioactive contamination.

—New York Times

The American Society for the Study of Sterility will hold its Seventh Annual Meeting at the Ritz-Carlton Hotel, Atlantic City, June 9-10, 1951. For program, write Pendleton Tompkins, M.D., c/o 49 E. 33rd St., New York 16.

* * *

The Ingham County Medical Society's Annual Presidents' Dinner of January 16 attracted 372 to the Country Club of Lansing. Guest speaker was William L. Shirer, author of "Berlin Diary" who gave a "Report on Germany."

J. S. Rozan, M.D., Lansing, was inducted as President of the Ingham County Medical Society at this meeting. The retiring President, Ralph Wadley, M.D., was made a member of the Board.

* * *

The Kent County Medical Society was featured by "the PR Doctor" of January 22 for its Emergency Phone System. This call system in Grand Rapids is a commercially operated plan which seeks to make the services of Doctors of Medicine available in any emergency, night or day.

The Physicians and Surgeons' Telephone Exchange of Grand Rapids has provided a 24-hour telephone answering, referral and location service to subscribing members for a quarter of a century. Recently the Kent County Medical Society decided the Exchange should provide coordinating functions by serving the public in emergencies. Each member of the Society, under fifty years of age, regardless of specialty, agrees to serve on a rotation basis as necessary to have Doctors available each night.

At the end of the first year's operation, the Exchange handled 456 emergency calls in a community of 165,000. D. B. Hagerman, M.D., Chairman, states: "The Service has been an ideal solution to clearing up misunderstandings, improving operating procedures and coordinating services to the best interests of everyone."

J. R. Brink, M.D., Secretary of the Kent County Medical Society, writes: "Efforts to serve the community in emergencies, as coordinated through the Exchange, are justified and a definite responsibility of the Kent County Medical Society."

* * *

The Upper Peninsula Medical Society will meet in Marquette on June 22-23-24, as guests of the Marquette-Alger County Medical Society.

For Men, Women and Children, 5th Floor Stroh Bldg. 28 W. Adams

HACK'S FOOT NOTES

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According to Lerrigo,* "About half of the six year old children already have some sort of foot trouble, such as corns or calluses."

He blames outgrown shoes, stating that parents too often do not anticipate the growth —in spurts—of their children's feet.

HACK SHOES will be fitted correctly, Doctor.

*LERRIGO, MARION O., "Shoes Don't Grow," Today's Health, 29:52-54 (Jan.) 1951.

The American College of Physicians announces a post-graduate course in "Diseases Due to Allergic and Immune Mechanisms," to be held in Pittsburgh, April 24-28, 1951. For program and information, write ACP, 4200 Pine Street, Philadelphia 4, Pa.

* * *

C. E. Umphrey, M.D., Detroit, MSMS President, addressed the Dearborn Medical Society on January 23 on the subject, "Medicine, the Public, Federal Security, and Labor"; the Muskegon County Medical Society, January 31, on "Americanism in Medicine"; the Northeast Lions Club of Detroit, January 18, on "National Confusion"; the Crusaders Lodge, Detroit, December 11 on "What's Going Around in Washington"; the Livingston County Medical Society at Howell, December 1, on "Public Relations in Medicine"; the Monroe County Medical Society at Monroe, February 6, on "State Channels of Medical Strategy."

* * *

Councilor J. S. DeTar, M.D., Milan, addressed the Milan Women's Club on January 9. His subject was "Socialized Medicine: Do We Want It?"

* * *

Michigan Industrial Health Day, Detroit, April 4, 1951: J. L. Zemens, M.D., Detroit, President of the Michigan Association of Industrial Physicians and Surgeons, has appointed Carl Hanna, M.D., Detroit, General Chairman, assisted by the following committeemen: Carey P. McCord, M.D., Detroit, Chairman, Program Committee; Carl Hanna, M.D., Detroit, Chairman, Hospitality Committee; F. B. MacMillan, M.D., Detroit, Chairman, Banquet and Refreshments; Harley Krieger, M.D., Detroit, Chairman, Hotels and Meetings; Henry S. Brown, M.D., Detroit, Chairman, Publicity; Wm. J. Fulton, M.D., Detroit, Chairman, Equipment, Facilities and Printing and Ticket Sales.

A "Twenty-five Year Club" has been formed by the Michigan Association of Industrial Physicians and Surgeons to recognize and show appreciation to those doctors of medicine who are active members of the Association and who have devoted twenty-five years or more in the field of Occupational Health. The following twenty-five year men will receive special recognition on the occasion of the second Industrial Health Day, Rackham Memorial Building, Detroit, Wednesday, April 4, 1951:

A. L. Arnold, M.D., Z. B. Bennett, M.D., H. S. Brown, M.D., C. J. Carpenter, M.D., G. B. Carpenter, M.D., C. A. Christensen, M.D., C. S. Clarke, M.D., Henry Cook, M.D., R. H. Denham, M.D., C. L. DeVries, M.D., C. H. Eisman, M.D., W. L. Finton, M.D., C. B. Gardner, M.D., L. C. Harvie, M.D., L. E. Irvine, M.D., Harley Krieger, M.D., D. F. Kudner, M.D., V. S. Laurin, M.D., A. F. Lecklider, M.D., C. P. McCord, M.D., E. G. Merritt, M.D., J. D. Miller, M.D., D. W. Patterson, M.D., G. C. Penberthy, M.D., A. E. Pullon, M.D., H. J. Pyle, M.D., Joseph E. Rosenfeld, M.D., C. D. Selby, M.D., L. E. Sevey, M.D., M. R. Sutton, M.D., C. A. Teifer, M.D., G. M. Waldie, M.D., A. H. Whittaker, M.D.

The St. Joseph County Medical Society cooperated in a blood clinic in Sturgis on February 1 which broke the record with the taking of 228 pints of blood in one day. The Medical Society sponsored a Bloodmobile in cooperation with the American Red Cross and the Michigan Department of Health.

* * *

The Trustees of Mercy Hospital, St. Joseph, Michigan, were hosts to the staff on February 1 at an appreciation dinner. Toastmaster E. A. Westin congratulated the medical profession of the community "on the vision reflected in this magnificent institution." Bouton Sowers, M.D., Chief of Staff, thanked the Board of Trustees for superb physical facilities. "Greater Mercy is a challenge to our staff and we shall try to meet that challenge to the maximum extent of our abilities," stated Dr. Sowers.

* * *

The United Health and Welfare Fund (United Foundation in Detroit) has again reprinted a section of JMSMS. This time it was the "Heart Number" (December, 1950). The reprint includes the cover and all the scientific articles having to do with heart, rheumatic fever, arteriosclerosis, et cetera, as well as the feature article on the Michigan Heart Association. This reprint will be sent broadcast by the United Health and Welfare Fund to its leaders and committees throughout Michigan.

Shattuck W. Hartwell, M.D., Muskegon, has been appointed by Council Chairman R. J. Hubbell, M.D., as Chairman of the MSMS Emergency Medical Service Committee. As Chairman of this Committee, he will also serve as one of the two MSMS representatives on the Governor's Technical Committee on Medical and Health Matters in Civil Defense Planning.

M. L. Lichter, M.D., Melvindale, has been appointed as a member of the MSMS Emergency Medical Service Committee.

* * *

The Northern Tri-State Medical Association will hold its annual meeting at the Commodore Perry Hotel, Toledo, Ohio, on April 17, 1951. The program is as follows:

9:00 Welcome—Pres. John A. Stifel, M.D.
9:30 Management of Thyrotoxicosis—GEORGE CURTIS, Professor of Surgery, Ohio State University
10:00 ACTH and Cortisone—JEROME CONN, M.D., Professor of Medicine, University of Michigan, Ann Arbor, Michigan
10:30 Management of Labor in Borderline Pelvis—G. J. VOSBURGH, M.D., Professor of Obstetrics, Western Reserve Medical School, Cleveland,Ohio
11:00 C.P.C. on Selected Case—ED BURNS, M.D., Pathologist, Mercy Hospital, Toledo, Ohio
12:30 Luncheon
1:00 Luncheon address—GROVE PATTERSON, World Traveler, Editor of Toledo Blade, Toledo, Ohio
2:00 Medical Aspects of Atomic Warfare—HYMER L. FRIEDELL, M.D., Director of Radiology, Western Reserve Medical School, Cleveland, Ohio
2:30 Diaphragmatic Hernia; The Evolution of Clinical Symptoms—CHARLES D. BRANCH, M.D., Assistant Clinical Professor of Surgery, University of Illinois, and George D. Laver's St. Francis Hospital, Peoria, Illinois.
3:00 Experiences with Pre-Frontal Lobotomy—E. VERNON HOHN, M.D., Director Neurosurgery, Indianapolis General Hospital, Indianapolis, Indiana
3:30 Anticoagulant Therapy—WARREN F. ALLEN, Ph.D., Educational Department, Upjohn Company, Kalamazoo, Michigan
4:00 Election of officers
4:15 Surgery of Mitral Stenosis—Speaker to be announced (may be changed)

All members of MSMS are cordially invited. Registration-membership fee: $3.00.

WAYNE UNIVERSITY COLLEGE OF MEDICINE ALUMNI ASSOCIATION CLINIC DAY AND REUNION

The Annual Wayne University Alumni Clinic Day and Reunion will be held at the Hotel Fort Shelby in Detroit on Wednesday, May 9, 1951. Registration will start at 9 a.m. followed by the annual meeting of the Medical Alumni Association at 9:30 a.m. A scientific program will be presented from 10 a.m. to 12 noon and from 2 p.m. to 4:30 p.m. Dr. Gordon H. Scott, Dean of the Wayne University College of Medicine, will be the speaker at the subscription luncheon. This year's reunion will feature the Golden Anniversary celebration of the Class of 1901, and reunions of the Classes of 1906, 1911, 1916, 1921, 1926, 1931, 1936, 1941, and 1946. Graduates before 1901 will hold the annual meeting of the Emeritus Club following the noon luncheon.

The evening program will consist of a reception for alumni and their guests at 6:30 p.m. and the annual Reunion Dinner at 7:30.

J. Courtney Fremont, M.D., chairman of the program committee, has announced the following scientific speakers:

"Observation on Gastrointestinal Gas"—WALTER G. MADDOCK, M.D., Professor of Surgery, Northwestern University, Chicago, Illinois.

"The Management of Allergic Conditions in Infancy and Childhood"—ARTHUR J. HORESH, M.D., Assistant Clinical Professor of Pediatrics, Western Reserve University, Cleveland, Ohio.

"Carcinoma of the Breast"—CARL W. EBERBACH, M.D., Associate Clinical Professor of Surgery, Marquette University School of Medicine, Milwaukee.

"Radioactive Iodine in the Treatment of Goitre"—WILLIAM M. MCCONAHEY, M.D., Mayo Clinic, Rochester, Minnesota.

"The Use of Hormones in Gynecology"—JACOB P. GREENHILL, M.D., Professor of Gynecology, Cook County Graduate School of Medicine, Chicago, Illinois.

"Emergency Treatment"—Symposium of Detroit physicians.

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